INTERGENERATIONAL PARALLELISM OF SELF-EFFICACY: MODERATING VARIABLES, MEDIATING VARIABLES, AND COMMON ANTECEDENTS

A Dissertation

by

CHENG-HSIEN LIN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2003

Major Subject: Sociology

INTERGENERATIONAL PARALLELISM OF SELF-EFFICACY:

MODERATING VARIABLES, MEDIATING VARIABLES,

AND COMMON ANTECEDENTS

A Dissertation

by

CHENG-HSIEN LIN

Submitted to Texas A&M University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Approved as to style and content by:

Howard. B. Kaplan (Chair of Committee)	William A. McIntosh (Member)
Lisa Matthews (Member)	John F. Finch (Member)
Rogelio Saenz (Head of Department)	

August 2003

Major Subject: Sociology

ABSTRACT

Intergenerational Parallelism of Self-Efficacy: Moderating Variables, Mediating Variables, and Common Antecedents. (August 2003)

Cheng-Hsien Lin,

B.A., Fu-Jen Catholic University;

M.A., San Diego State University

Chair of Advisory Committee: Dr. Howard B. Kaplan

A number of theories and studies in sociology and psychology have asserted that self-efficacy is both the consequence and cause of our everyday life experiences. However, there is little empirical evidence to support the existence of intergenerational parallelism of self-efficacy between generations. And if it exists, then the processes by which self-efficacy is transmitted from parents to children is rarely documented in the literature. In addition, it is noteworthy to examine whether such intergenerational transmission of self-efficacy exists among different types of families, genders, or racial groups. In my dissertation, I intend to answer these inquiries by utilizing a longitudinal data set that incorporates information of three generations (grandparents, parents, and grandchildren) reporting their individual age, educational attainment, self-esteem, and self-efficacy, with both parent generation's self-efficacy and child generation's self-efficacy having been collected in the same developmental stage (early adolescence). In addition, parents also reported several aspects of their adulthood conditions and behaviors, including their occupation, substance use, parenting behaviors, educational

expectation upon their children, and their self-efficacy in adulthood, which I introduce as mediating mechanisms of the intergenerational transmission of self-efficacy. Finally, I analyzed this model separately in terms of family structure (dual- or single-parent families), child's gender, parent-child gender dyads, and race/ethnicity.

The results suggest that there exists intergenerational parallelism of self-efficacy, and parent generation's self-efficacy (in adolescence) is associated with parents' choices of conventional pathways towards adulthood. These conventional pathways that self-efficacious parents choose in turn exhibit a strong influence on the development of the child's self-efficacy. These findings are independent of other influences, e.g. the family's social economic status, race/ethnicity, ages of both generations, and family structure. The implications and contributions of this research are discussed in the last chapter.

DEDICATION

I dedicate this dissertation to Dr. Daniel Ross, S.J. and my family. Their endless encouragement and support make pursuing and achieving my Ph.D. possible and more enjoyable. Dr. Ross brought me into the world of sociological imagination and always found a way to bring out the best of me in all circumstances. I believe that his motivating power will continue to uplift up my spirit in my future career. My parents, Chun-Hsiung and Mei-Li Lin-Chao, my wife, Chiung-Fang Chang, and my boys, Samuel and Eric, have given me immense love to help me through the tough times and share with me the good times. Thank you.

ACKNOWLEDGMENTS

I have been fortunate to have many persons contributing to the completion of my Ph.D. degree. First, I want to thank my committee advisor, Dr. Howard B. Kaplan, who offered me both academic guidance and assistantships to help me obtain the needed professional knowledge and skills for my future career. His insightful comments on my works always served to pinpoint the weakness of my work and challenge me to develop better strategies to improve my research. I am grateful for Dr. Alex McIntosh's many helpful comments on this dissertation. His commitment to students – both through his accessibility and availability – is especially appreciated, as I frequently ran to him with a quick question or two. Many other professors provided their wonderful mentorship towards my preparation for academia: Dr. Dudley Poston, Dr. Harland Prechel, Dr. Mark Fossett, Dr. Edward Murguia, and Dr. Jane Sell taught me many invaluable things which will assist me as a professional. Not only have they been good teachers but also understanding friends to me as well. They epitomize the role-model a student can always follow.

TABLE OF CONTENTS

CHAPTER Page

LIST OF FIGURES

LIST OF TABLES

TABLE Page

CHAPTER I

INTRODUCTION

Self-efficacy has excited a good deal of attention from behavioral scientists not only because of the intrinsic interest it stimulates but also because of the wide range of salient consequences that have been attributed to self-efficacy. Consequently, a good deal of attention has been paid to the processes by which self-efficacy is generated. However, research examining parental self-efficacy's short and long term effects on their offspring are less apparent in the literature. The present research is situated in the theoretical and research traditions that attempt to account for such intergenerational influences of self-efficacy. Several theoretically informed models are estimated in which adolescent self-efficacy is explained in terms of the self-efficacy of parents at the same developmental stage, and in terms of the (parenting techniques, parental behaviors, and parental occupation) variables that mediate this relationship. Furthermore, several moderating variables (family structure, race/ethnicity, and gender) are also introduced in the above models to examine the nature of the conditional patterns of intergenerational parallelism of self-efficacy.

Self-efficacy is a person's estimate of his or her capacity to orchestrate performance on a specific task (Gist and Mitchell 1992). Strauser (1995) interpreted Bandura's (1977) concept of self-efficacy as an individual's perception of his/her skills

---

This dissertation follows the style and format of *American Sociological Review*.

and abilities to act effectively and competently. Self-efficacy influences actions and coping behavior, the situations and environments that individuals choose to access, and their persistence in performing certain tasks. According to Ozer and Bandura (1990), self-efficacy is "concerned with the motivation, cognitive resources, and courses of action needed to exercise control over given events" (p. 472). This description extends and illustrates Bandura's (1977) early construct of self-efficacy as the belief in one's ability to successfully perform a particular behavior. Extended descriptions of self-efficacy bring the environmentally based elements into the foundations of self-efficacy, and incorporate both knowledge of requisite behaviors and perceptions of whether or not the social system will be supportive of one's actions (Gecas 1989). That is, the construct of self-efficacy is interwoven with the knowledge of the particular behaviors to which they relate, as well as perceptions of situational contingencies (Coleman and Karraker 1998).

Self-efficacy is one of the most important variables in research of self-conception. As noted by Gecas and Schwalbe (1983), "the notion of human agency and self-creativity, which have been a hallmark of the symbolic interactionist tradition, can be brought into the studies of self-concept through self-efficacy; moreover, the concept of self-efficacy emphasizes 'self-determination' in the process of self-concept formation and thus underscores the reciprocity between self and social structure" (p. 77). Self-efficacy entails individuals' past experiences and social structure, while self-esteem is a self-evaluation of goodness or personal worth (Gecas 1989). It is arguable that self-efficacy is more likely to be transmitted to the next generation than self-esteem because

self-efficacy embraces the influence of social structure and the consideration of social situations. These elements often impact family members across generations by the limitations of social resources including education, social environment, and mastery experiences when exercising their control over daily difficulties.

However, some may suggest that self-esteem is also trangenerational because social resources available to generations are tied to the potential positive outcomes in work, school, and SES. Therefore, intergenerational parallelism of self-esteem is plausible in terms of the successful outcomes that both generations obtain. These two suggestions, however, miss the fact that self-efficacious individuals are also more likely to inspire their children to conduct self-directed behaviors, which is another pathway of intergenerational parallelism in self-efficacy. In contrast, the sources of self-esteem are more versatile other than achievement. For instance, self-esteem can be also obtained from individuals' inherited social status. The social-status-defined self-esteem is less likely to be transmitted to the next generation although both generations may hold high self-esteem from their shared social status. That is, at most, they may present intergenerational parallelism of self-esteem, but not intergenerational transmission of self-efficacy. If the latter exists, it then should be explained by the levels of self-efficacy developed from both generations' life experiences in successes and achievements. The literature review will develop this discussion in detail.

Statement of the Problem

Causes and Consequences of Self-Efficacy

In addition to its influence on self-esteem, numerous studies have found that self-

efficacy is associated with various favorable consequences, within the realms of physical health (Barnwell and Kavanagh 1997), mental health (Gecas 1989; Kiecolt 1994; Milligan et al. 1997; Schafer, Wickrama, and Keith 1998; Seff, Gecas, and Ray 1992), AIDS prevention and treatment (Bandura 1990; Jemmott et al. 1992), risky sexual behaviors such as condom (non-) use (Jemmott et al. 1992; Steers et al. 1996; Taris and Semin 1998; Zimmerman et al. 1995), academic performance (Bandura et al. 1996; Moriarty et al., 1995; Wentzel 1996; Zimmerman 1995; Zimmerman, Bandura, and Martinez-Pons 1992), problem behaviors (Agnew and White 1992; Ellickson and Hays 1990; Jackson 2000; Kumpfer and Turner 1990), and many other areas. Such studies also have reported self-efficacy to be an important moderating (Jackson 2000) and mediating variable (Teti and Gelfand 1991) in explaining many psychosocial correlates of self-conception (Gecas and Seff 1989). Arguably, the more influential of these studies address the causes (Juang and Silbereisen 1999; Tashakkori and Thompson 1991) and effects (Ludwig and Pittman 1999) of self-efficacy in the contexts of family environment by examining the intergenerational congruence of self-efficacy or related attitudes (e.g., sense of control, competence, and self-esteem). For instance, Seeman and Monto (1999) reported that mothers' sense of control and self-esteem were mirrored in children's self-perception of achievement independent of the effects of child's sex, race, and family structure. Moskowitz (1992) examined self-efficacy of three generations of Jewish survivors of the Holocaust and of Jewish-Americans not directly exposed to the Holocaust and reported that the survivors measured higher in self-efficacy than the comparison generation group. However, no intergenerational transmission of self-

efficacy was found in terms of the comparisons of the two groups across the second and third generations. Ackerman and Ackerman (1989) also failed to find significant parents-child (college students) resemblance in locus of control (a highly related construct to self-efficacy) and achievement motives. However, Brown and Mann (1991) observed a positive relationship between parents' decision-making self-esteem and self-esteem of adolescents (aged 11 to 18 years), with the strongest relationship existing between fathers and young adolescents (aged 12 to 14 years). Although these studies examined the intergenerational parallelism (or resemblance) of self-efficacy or related self-concepts, the possible processes of intergenerational transmission of self-efficacy remained unexamined. For instance, they did not specify the mediating processes of self-concept to be transmitted to the next generation within the processes of social selection and socialization. Albeit the phenomenon of intergenerational parallelism is found in some of these studies, an examination to explain such parallelism is also needed to account for social selection processes during the growth of parents' generation from adolescence to adulthood, as well as the socialization processes from parents to children.

Limitations in Research on Intergenerational Parallelism

These studies, however, suffer from a number of limitations. First, these studies frequently do not permit determination of whether the observed intergenerational parallelism is spurious or, rather, reflects a causal process. Although some studies observed intergenerational parallelism of self-efficacy or self-esteem, whether and how parents' self-efficacy in adolescence is transmitted to offspring remains problematic. The parallelism might be the spurious result of common antecedents such as cross-

generational stability in neighborhood socioeconomic status (Boardman and Robert 2000). Intergenerational continuity may occur because of common experiences from similar social circumstances or from positions in the social structure such as low socioeconomic status (SES) across generations (Kaplan and Liu 1999; van IJzendoorn 1992). The socially based variables may lead to common adaptations because available social resources (to adopt or to learn from) across generations are similar. Therefore, it is necessary to account for the phenomenon of contextual continuity to examine intergenerational continuity across generations. Alternatively, first generation self-efficacy may have consequences that in turn influence self-efficacy in the second generation. To lend weight to one or the other interpretation, at the very least controls for putative common antecedents of the first and second generation parallelism should be specified. Second, data for both generations often are provided by only one of the generations (Kaplan and Liu 1999). Parents' reports regarding adolescents' behaviors (and vice versa) are often affected by the reporters' own perspectives on the target objects, and thus the phenomenon of intergenerational continuity is often confounded (Kaplan and Liu 1999; Simons et al. 1995). Third, the intergenerational parallelism more often than not observes two generations at different stages in the life course (e.g, Ackerman and Ackerman 1989). Thus the psychosocial states and behaviors that are stimulated differ among generations due to their different life experiences to that point in time (Kaplan and Liu 1999).

Fourth, even where intergenerational parallelism in self-efficacy is observed and causal influence is imputed to first generation self-efficacy, studies in general do not

specify the mediating processes that intervene in the putative causal relationship between first and second generation self-efficacy. Several such intervening processes relate to first generation parenting patterns, parental educational attainment, parental educational expectation of their children, parental substance use, and their job complexity.

Purposes of the Study

The present study proposes to: (1) identify the degree of intergenerational parallelism of self-efficacy between parents and children in the same developmental stage; (2) test for hypothetical social conditions (i.e., family structure, race/ethnicity, and gender) that moderate the intergenerational parallelism in self-efficacy; and 3) specify the mediating pathways implicated in putative intergenerational transmission.

CHAPTER II

RELATED THEORIES

Theories of Self-Efficacy

To examine intergenerational transmission of self-efficacy, a discussion of assumptions embedded in the theories of self-efficacy will provide some perspectives about how self-efficacy is developed and cultivated, and then in turn, influences the next generation in the immediate social milieu. According to Gecas (1989), these theories can be differentiated to two schools in terms of their emphases on how they conceptualize self-efficacy and how self-efficacy is developed. Both lines of theories, motivational and cognitive, are heavily indebted to attribution and social learning theories. Their conceptualization of self-efficacy and assumptions of human agency provide the basis to account for the development of self-efficacy in life course and its relationships with social environment. In addition, although these two lines of theories have many different emphases, they overlap each other in many ways (Bandura 1997; Gecas 1989) and both are often undistinguished in empirical research.

The first line of theories is motivational theories which conceptualize self-efficacy in motivational terms. They tend to emphasize the experience of causal agency and to argue that self-efficacy is a fundamental human need and a basic element in one's sense of self – a drive to have control over environment (Gecas 1989; White 1959). White's (1959) theory of "effectance motivation" was an early statement that suggests effectance motivation as an intrinsic motivation to produce effects on the environment. Such activities are characterized as exploratory, creative, and playful so that actors

engaged in such activities will have feelings of "the joy of being a cause" or "the pleasure of mastering challenges" (see Reeve, Cole, and Olsen 1986). White's theory suggests that people are inherently driven to exercise control over their environment and that the achievement of control is inherently self-satisfying (Bandura 1986, 1997).

In the camp of motivational theories of self-efficacy, several others offered other similar concepts on the basis of these assumptions. For example, Yarrow and his associates (1983) emphasized mastery motivation instead of effectance motivation, characterizing it as a striving for competence or an effective action in dealing with the environment. Similarly, Smith (1968) discussed the concept of "competent self," while Harter (1978) advanced the term of "competence motivation" to investigate developmental changes in the content of competence motivation and Deci (1975) stressed actors' needs for "self-determination" and "competence." In sum, although different in terms and somewhat different in conceptualization, motivational theories generally underscored "control" rather than "competence" (Gecas 1989). As with competence, these theories commonly stressed the experience of control and the motivation to be in control (e.g., DeCharms's "personal causation" 1968; McClelland's "power motive" 1975). Thus, these emphases characterized motivational theories rather than cognitive theories due to their orientations toward "control."

The second school, cognitive theories, conceptualizes self-efficacy in terms of expectancies and perception of control (Gecas 1989). These theories are based largely on attribution and social learning theories. They emphasize beliefs and perceptions of causality, agency, or control and emphasize less the motivations to hold such beliefs

(although these beliefs do have motivational implications). These theories emphasize people's tendency towards causal attributions in attempts to make the social world predictable and controllable (Pittman and Heller 1987). The purpose of such causal attribution is to allow the species and the individual to have effective control (Kelley 1971). Rotter's (1966) distinction of "internal" and "external" locus of control, which is distinguished by causal attributions of personal success or failure to individual self or external environment, is a good example in cognitive theories of self-efficacy. Seligman's (1975) "learned helplessness," which refers to a chronic sense of inefficacy resulting from learning one's actions have little effect on one's environment, is another theory in this school. The most influential work done by Bandura (1977, 1986, 1995, 1997), "self-efficacy theory," is based on social learning theory centered on self-evaluation processes. Bandura distinguishes between a) efficacy expectations (a judgment of one's efficacy to perform a particular action) and b) outcome expectations (an estimate that a given action will lead to a certain outcome). Such distinction stresses the feelings of futility resulting from a) low self-efficacy or b) perception of unsupportive social environments. In order to increase efficacy-based futility and outcome-based efficacy thus requires different kinds of changes. The former needs a development of competency and expectation of personal effectiveness, while the latter requires individuals' instrumental value to be restored, contingent with their environments (Bandura 1977). Gecas (1989) thus emphasizes that such distinction based on perceptions of self in relation to the social environment is important to traditional sociological concerns.

These two theoretical approaches provide an important basis to suggest that people have (inborn) drives and incentives towards greater feelings of self-efficacy (Bandura 1997). To achieve this purpose, self-monitoring and self-referent of efficacy beliefs are constant activities when people interact with others and within their social milieu. According to Bandura (1977, 1986, 1995, 1997), people attain greater self-efficacy from (enactive) master experience, vicarious experience, verbal persuasion, and affective (psychological) states. That is, self-efficacy is interwoven with all kinds of social activities. Children self-monitor their experiences and constantly re-evaluate their efficacy beliefs in light of their performance in those experiences. Gecas (1989) and Bandura (1997) emphasize that the development of self-efficacy is an accumulated process and the level of self-efficacy is relatively stable over the life course. The stability of efficacy beliefs are attributed to the product of diverse sources of experiences and the development of personal cognitive skills for processing information improving over time (Bandura 1997). In addition, Bandura theorizes the mediating processes by which self-efficacy produces their effects on individuals' feeling, thinking, motivations, and actions. These mediating processes have implications on the consequences and the development of self-efficacy. Moreover, the corresponding behaviors and efficacy beliefs in adolescence and adulthood impact the development of their children's self-efficacy and the subsequent behaviors through certain mediating processes.

Mediating Processes

Bandura (1995, 1977) describes four mediating processes to explain how self-efficacy can influence people's selections of goals and strategies, and can in turn,

account for their performance and later self-efficacy. A great deal of research has examined such theoretical processes by elaborating many variables in family, school, and work settings for more than two decades. In the present research, several mediating variables are introduced to examine whether the self-efficacy of parents when they were adolescents can influence their later performance in parenting techniques, academic achievement, job selection, and adult self-efficacy; and consequently, whether these parental factors have effects on the development of children's self-efficacy. As Bandura's (1977, 1986, 1989, 1997) discussion of sources of self-efficacy suggests, children's efficacy beliefs are cultivated by verbal persuasions they received from parent-child communication, by vicarious experiences that children observed in family, school, and other immediate setting that the significant others are around, by psychological arousal that children were stimulated by significant others in everyday life, and children's own mastery experiences that they achieved in various works in conjunction with supportive environments. By incorporating the four major mediating processes through which self-efficacy produces its effects, which include cognitive, motivational, affective, and selection processes, and the four sources of self-efficacy through which self-efficacy is produced, individual beliefs of self-efficacy are self-monitored and accumulated in terms of their success or failure in diversity of experiences.

Cognitive processes refer to ways in which self-efficacy can affect thought patterns that can enhance or undermine people's skill learning and performance. Bandura (1997) emphasizes that "a high sense of self-efficacy fosters cognitive

constructions of effective course of action, and cognitive enactments of efficacious actions, in turn, strengthen efficacy beliefs" (p.117). As such, people's conception of ability as either an acquirable skill or an inherent aptitude greatly affects their self-regulatory mechanisms which govern cognitive functioning and performance accomplishments (Wood and Bandura 1989). For instance, social comparison operates as one pervasive influence in the self-appraisal of capabilities, which in turn, affects personal goal setting and personal commitment to them. For example, organizational decision making research showed that subjects who had performed relatively poorer than their colleagues initially, but received feedback about their own performance, ended up improving their performance, gradually closed the gap, and finally surpassed their counterparts (Bandura and Jourden 1991). Furthermore, what people believe about the extent to which their environment is influenceable or controllable has an impact on how people cognitively process their efficacy information. Thus weak beliefs of controllable circumstance make people lose aspiration and faith in themselves to make further effort to change the circumstance. In sum, efficacy beliefs influence the cognitive processes and in turn affect the generation and use of problem-solving strategies, aspiration, and performance.

In motivational processes, Bandura (1995, 1997) suggests attribution, expectancy-value, and goal theories to explain how self-efficacy has affected human behaviors. According to the attribution theory of motivation (Weiner 1985), people's retrospective judgments of the causes of one's performance have motivational effects. Their attribution of success to personal capabilities can serve as a cause for future

actions, because the causal attributions can influence achievement strivings and performance which is mediated by self-efficacy (Relich et al. 1986; Schunk and Gunn 1986). As a result, self-efficacious individuals view attainment as personally controllable. Furthermore, they tend to attribute their success or failure to personal abilities and efforts and as such are more willing to undertake difficult tasks and persist in the face of failure.

Next, expectancy-value theory accounts for how outcome expectancy can motivate individuals because of the attractiveness of those outcomes. (Ajzen and Fishbein 1980; Rotter 1982). The basic principle is that the greater the expectancy that a certain behavior can secure specific outcomes and the more the outcomes are valued, greater is the motivation to execute the activities. Ajzen's (1985) theory of planned behavior is one of theories in this category and suggests that perceived control (defined as perception of task difficulty) in conjunction with perceived outcomes and social pressure affects performance both directly and indirectly through its effects on intention.

Bandura (1997) suggests goal theory as the last theory explaining the motivational processes of self-efficacy in which challenging goals enhance motivation. Individuals are motivated to seek self-satisfaction from fulfilling valued goals with knowledge of one's performance level. As he argued: "Goals operate largely through self-reactive influences rather than regulating motivation and action directly. Perceived self-efficacy is one of the important self-influences through which personal standards create powerful motivational effects" (p. 128).

With regard to affective processes, Bandura (1995, 1997) suggests that mood (anxiety and depression) and self-efficacy can influence each other bidirectionally and thus work independently and/or in combination to affect individuals' performance. Social cognitive theory stresses appraisal of externally generated arousal, which influences individuals' self-evaluation. For example, Bandura (1997) suggests that anxiety is generated when an individual develops a feeling of coping inefficacy due to uncontrollable environments, and this sense of inefficacy to master activities of personal importance in turn predicts depression. Moreover, perceived self-efficacy to exercise control over stressors plays a central role in anxiety arousal (Bandura 1991).

Furthermore, Bandura (1997) especially emphasizes that adolescence is a critical period during which the relations among anxiety, depression, and perceived self-efficacy are highly correlated. He writes: "Adolescence is a critical period of development that places heavy demands on simultaneously managing stressful biological, educational, and social changes. Children who are beset by self-doubt and who lack supportive guidance have a lot they can get depressed about during this vulnerable time" (p. 160). Moreover, adolescents' depression and perceived inefficacy are also generated differently in terms of gender. "Whereas boys get depressed mainly over perceived inefficacy to fulfill academic demands, girls get depressed over perceived inefficacy in academic, social, and self-management aspects of their lives (p. 160)." In sum, the reciprocal influences between affective states and perceived efficacy are stressed in Bandura's theory and examined in empirical studies. Literature suggests affective processes are highly related

to self-efficacy, and that this relationship affects individuals' motivation and performance in pursuit of their goals.

Selection processes is the final mediating processes Bandura discussed which enable people to create beneficial environments and exercise control over them. Unlike the other mediating processes, selecting processes prompt dismissal of certain courses of action on grounds of personal inefficacy, while the other regulative processes never come into play. Although people can engage in multiple alternative activities and environments - those in which they can demonstrate significant control and those which exceed their capabilities, most individuals readily undertake activities and pick social environments they judge themselves capable of handling (Bandura 1997). The higher individuals perceive their own self-efficacy, the more challenging the activities they tend to select (Meyer 1987). Furthermore, Bandura suggests: "people of high efficacy not only prefer normatively difficult activities but also display high staying power in those pursuits" (p. 160). The power of efficacy beliefs to affect the course of life paths through selection processes is most clearly revealed in studies of career choice and development (Bandura et al. 2001; Betz and Hackett 1986; Lent and Hackett 1987). Moreover, Bandura asserts that seemingly inconsequential efficacy determinants of choices can initiate selective interpersonal associations that produce major and enduring personal changes.

The present research attempts to examine several mediating variables informed by Bandura's (1997) discussion of mediating processes of self-efficacy on human behaviors, namely parental practices, parental educational attainment, parental self-

efficacy in adulthood, parental expectation on children's education attainment, parental substance use, and parental job complexity. According to the introduction of cognitive, motivational, affective, and selection processes, self-efficacy may influence the way in which people perceive situations they encounter, processes by which they attribute causality - whether to themselves or to outside circumstances, the magnitude that moods and emotions influence self-evaluation and consequent behavior, and the manner by which individuals choose pathways to excel or to avoid difficult confrontations. The developments of self-efficacy and these mediating mechanisms are in a process of constant interaction between individuals and the surroundings. For example, parental early self-efficacy may result in use of less harsh and more interactive parenting techniques, because parents with high(er) self-efficacy perceive their roles as parents to be efficacious so that they are more willing to learn new skills for performing the roles (cognitive processes). These parents are more likely to attribute their past successes to their enduring efforts and to reproduce successes in the present and future with sufficient preparation and appropriate goal-setting (motivational processes). Their mood is high and they are less likely to be discouraged by temporary failure so that their efforts for success are not interrupted by the negative incident or attitudes (affective processes). Furthermore, in order to succeed as parents, high self-efficacious parents select environments in which they can exercise control (e.g., good timing to be parents, living in an area with more supportive environment for parents) and avoid those ones that exceed their capabilities (selection processes). These mediating variables have impacts on a child's behavior and selection of pathways and then contribute to children's later

self-efficacy (e.g., self-efficacy in adulthood). The everyday interactions between parents and children provide countless opportunities for efficacious parents to socialize their children with efficacious attitudes and self-confidence through positive role-modeling and verbal encouragement. These interactions enable children to build successful experiences and cultivate positive attitudes toward themselves. Therefore, the proposed mediating variables derived from these theoretical processes are expected to mediate the intergenerational parallelism of self-efficacy because they signify consequences of parental self-efficacy in adolescence and subsequently generate the sources of children's self-efficacy.

Moderating Conditions

Family structure, gender, and race/ethnicity are three moderators examined in the present research of intergenerational transmission of self-efficacy. According to Bronfenbrenner's (1979) ecological theory, family processes (such as parental behavior and parent-child interactions) and contextual factors (such as parents' socioeconomic status or race) often interact to affect children's development. Family structure has important implications regarding availability of family resources to children for greater achievement in social competence. For instance, two-parent families often have greater family income, cultural capital, and social skills to assist and support their children's learning and development than single-parent families. Due to exacting financial burden and job commitments, children in these circumstances frequently receive less parental involvement and less material resources.

With regard to the moderating effects of race/ethnicity, many have suggested that some minorities have subcultures that define a moderate-to-harsh parenting style as normative. For instance, Deater-Deakard and Dodge (1997) claimed that a moderate level of physical punishment is not problematic for African American children because this disciplinary style is normative in Black communities. However, Steinberg, Dornbusch, and Brown (1992) claimed that factors in the social environment of some minority children can greatly attenuate the otherwise positive effects of authoritative parenting on children's academic success because the peer subculture among these minority children devalue academic success.

Additionally, males and females may have differential opportunities to exercise control in family and school. As Block (1983:1339-40) concluded in her review of literature on sex difference in self-efficacy:

> The self-images of males, in contrast to those of females, include stronger feelings of being able to control (or to manipulate) the external world…. Males describe themselves as more powerful, ambitious, energetic, and as perceiving themselves as having more control over external events than females….The self-descriptions of males, more than those of females, include concepts of agency…., efficacy…., and instrumentality – all reflections of a self-concept in which potency and mastery are important components. In contrast, females describe themselves as more generous, sensitive, nurturing, considerate, and concerned for others….The self-concepts of females emphasize interpersonal relations and communion… and do not emphasize competition and mastery.

Such sex difference is not only found among adolescents, but also adults, especially during the stages of parenting in the family cycle (Gecas 1989). Such sex difference, as part of children's outcomes, has been attributed to cultural factors (such as sex-role stereotypes of being "Masculinity" or "Femininity"), structural factors (such as the

structural of social environments of males and females), or both. Sex-role socialization in family and school may be rendered by authorities into different conceptions of self-efficacy for boys and girls (like what color of clothes to wear, what kinds of toys to play, and what sports to participate). Structural factors may direct the explanation to power differentials between men and women in society, as well as social stereotypes of women's greater dependency and restricted opportunities, the nature of housework in family, and particularized work content and categories in women's jobs (Mirowsky and Ross 1986).

Given the impacts of family structure, race/ethnicity, and gender on the exercise of parenting practices, the level of self-efficacy, and family processes and the potential effects of cultural and structural factors implicated these moderators, it is necessary to examine the proposed models separately in terms of these moderators. In addition, it seems possible these moderators may have a direct effect on individuals' self-efficacy according to theories and empirical evidences. That is, they can serve as not only as moderators but also as control variables in the present research.

Theoretical Framework

A further step of the current research is to explain how the aforementioned theories can be examined in terms of the availability of the variables in the dataset, and the links between theories and the research questions. Figure 1 illustrates the processes by which how parental self-efficacy in adolescence impacts parent's later development in normative life trajectories, which in turn, maintains or increases the later parental self-efficacy in adulthood. Figure 2 further extends the theoretical model to parental

influences on their children by incorporating Bandura's discussion (1977, 1986, 1989, 1997) of the sources of self-efficacy and the proposed mediating variables of this research. These two figures were developed according to Bandura's descriptions and interpretations of his theories with regard to self-efficacy. His approval of these two figures was not warranted; nevertheless, these two figures were developed most closely to Bandura's discussions in the mediating processes of self-efficacy on personal goal-setting and performance and the sources of personal self-efficacy.

In Figure 1, by following Bandura's mediating processes of self-efficacy, self-efficacious adolescents are more likely to select a normative life course in a timely fashion. These adolescents choose normative life courses because their high self-efficacy cognitively enacts their efficacious actions with a thoughtful plan in use of effective course of action (cognitive processes) (Bandura 1997). Such cognition encourages them to face challenges and commit themselves to normative life activities (to earn credits from their school works, to be a good son/daughter, to accept rules and responsibilities), as compared to deviant activities (to keep away from school demands, and to avoid responsibilities and disciplines). Adolescents in normative life trajectories incur more challenges than in deviant ones due to increased responsibilities, demands, and decreased levels freedom. Furthermore, adolescents who are in a normative trajectory are often encouraged and praised by parents and teachers for their accomplishments as good children and good students. The praise and approval from the significant others demonstrate positive influences on child's positive affections towards himself/herself, which in turn, influences self-evaluation in his/her abilities to stay in

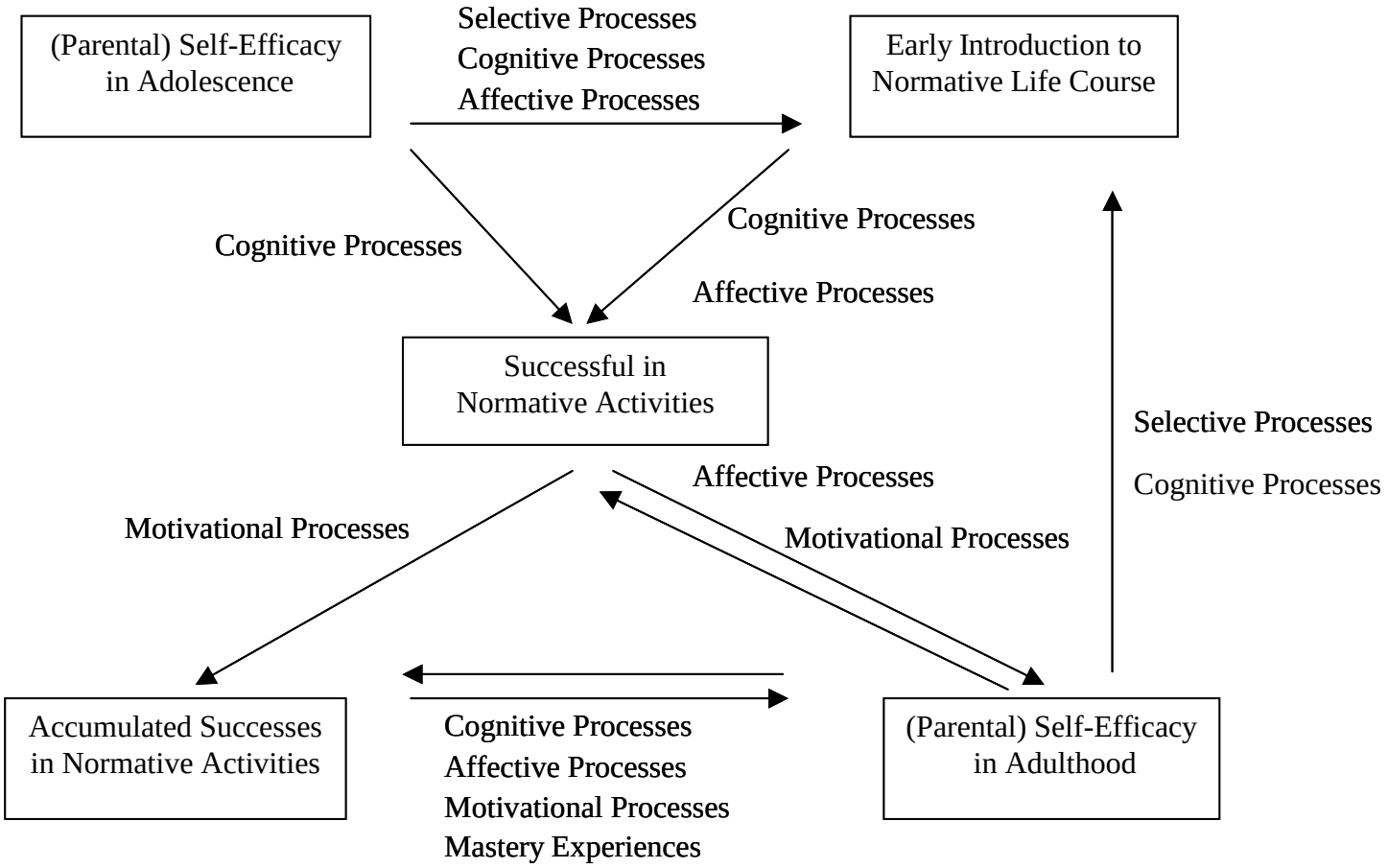

Figure 1. Theoretical Framework I – within Generation

normative trajectory (affective processes).

The cognitive and affective processes of choosing positive identities likewise encourage efforts by adolescents to support such identities through positive actions. Their cognition as self-efficacious adolescents and rule-abiding adolescents are generally strengthened because of exposure to supportive social environments provided by conventional authorities. These authorities not only support but also assist adolescents in their normative activities so that their chances in success in these activities are greatly increased. Moreover, the earlier successful experiences foster future successes and individuals' sense of self-efficacy improves due to their attribution of their successes to their abilities (motivational processes). This personal sense of self-efficacy in turn contributes to positive attitudes and states of emotional well-being. Given these support processes, adolescents in normative life trajectories are able to weather disappointments and occasional failures without serious detriment. Long term, such continued positive reinforcement of self-efficacy and successful experiences in conventional activities create an escalated spiral and benefit adolescent successes in the future. In this way, adolescents become confident individuals willing to welcome challenges with carefully planned strategies. In addition, their external supports are immense, thanks to their long commitment in conventional activities and strong bonding to conventional institutions.

Figure 2 further illustrates how parental commitments in conventional activities impact the development of a child's self-efficacy in terms of Bandura's theories. The mediating variables proposed in this research are traditionally normative activities valued by our society. Conventional individuals are expected to be communicative and

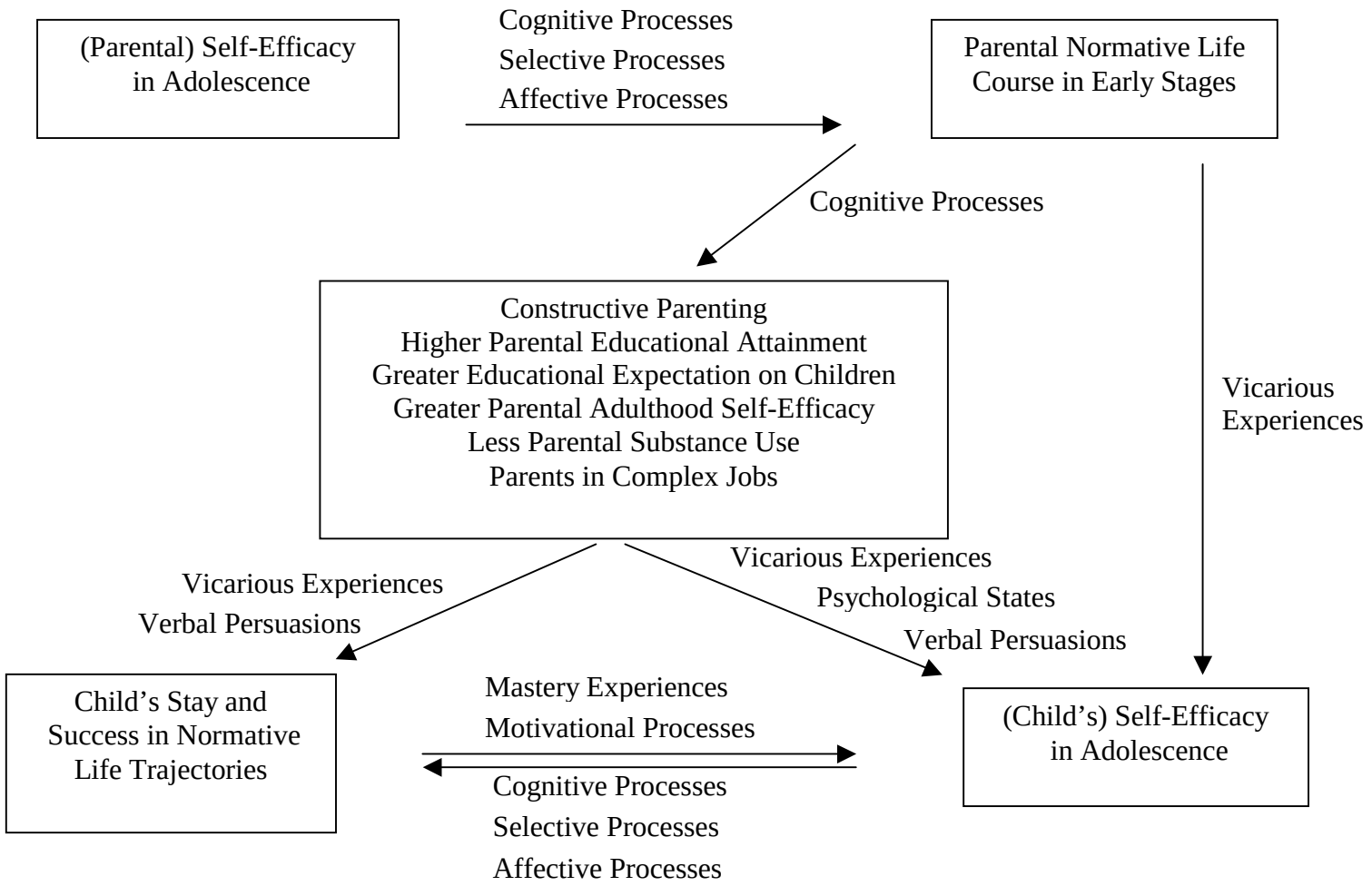

Figure 2. Theoretical Framework II – across Generations

responsive parents and to use less coercive parenting techniques when they become parents. A higher education attainment is encouraged and parents generally hold such expectations on their children. For instance, although alcohol and cigarettes are legal for adults in our society, the general public does not endorse abuse of these substances; and as such, people who heavily use these substances are not considered conventional citizens but failures. Finally, along with values in high(er) educational attainment, our society attributes higher values to those with autonomous occupations. Since people who work in such occupations often have higher SES and are more likely in higher positions in their workplaces, such conditions tend to increase the value of being in autonomous occupations as compared to blue-collar occupations.

Furthermore, these mediating variables are treated as representations of the conventional life trajectory implied in Bandura's theories. First, children reared in these conventional families benefit from these socioenvironments provided by their parents. Second, parents' successes in conventional activities offer their children vicarious experiences as references for children's potential success in the similar activities. Finally, their conventional parental roles along with the expected parenting techniques suggest that they are more likely to verbally encourage their children towards a normative life trajectory, which in turn, increase children's successes and the development of higher self-efficacy. Thus, supportive socioenvironments benefit children's psychological well-being and their development of self-efficacy (Bandura 1989).

Figure 1 and Figure 2 summarize Bandura's social cognitive theory, social learning theory and theory of self-efficacy within generation and across generations. These theories, in sum, suggest that self-efficacy can be developed from accumulated successful experiences in conventional social activities and social approval from significant (conventional) others. These experiences not only facilitate one's own efficacy beliefs, but also become the sources of self-efficacy of their children by many mechanisms embedded in these conventional behavior patterns. The current research is based on the theoretical grounds and attempts to examine the potential transmission of self-efficacy intergenerationally, which was not intentionally discussed in the aforementioned theories. Further empirical evidences are discussed in the next chapter.

CHAPTER III

EMPIRICAL LITERATURE

Moderating Variables

Family Structure

The relevant literature suggests that children who come from relatively small, intact, middle-class families, are more likely to be expected to succeed, go further in school, and ultimately obtain relatively high-prestige jobs. The most studied aspects of family structure concern the presence of parents in the household and parental marital status. The common categories presented in the literature distinguish between intact families, single-parent families, and others (e.g., cohabitating families, step families). Among these types of families, intact families attract the most attention from researchers, while other diverse types of single-parent families fall into the other category without further considering their variance in family resources (Demo and Cox 2000). Intact families are assumed to be the most advantageous family setting for children according to most theories of socialization. Demo and Cox (2000) explain such assumptions in terms of two reasons: 1) the heterosexual parents can provide children both same-sex and other-sex role models; and 2) these two parents offer greater benefits for social, emotional, and economic supports. Research examining the effects of family structure on parents' and children's well-being showed that children in the first married families displayed better socioemotional adjustment, academic performance, and global well-being than children in remarried, divorced, and continuously single-parent families (Acock and Demo 1994, 1996). Two meta-analyses reviewing the past two decades of

family research by Amato and Keith (1991; Amato 2001) concluded that a small advantage existed favoring children in intact families over their counterpart peers in divorced single-parent families, and that the latter continued (in young adulthood) to score significantly lower on measure of academic achievement, psychological adjustment, self-concept, and social relations. Moreover, the gap between children with divorced and married parents decreased during the 1980s and increased again during the 1990s (Amato 2001).

Research suggests that the difference between intact family and single-parent family may result from the differential effects of parenting practices regarding children's well-being and behaviors. For example, Amato and Fowler (2002) found that parental monitoring was positively associated with children's grades and negatively associated with problem behaviors in single-parent families. The associations in intact families were found to be low and nonsignificant. This was attributed to the difficulty of consistent monitoring in single-parent families. Mothers in married families also reported somewhat more pleasant and less stressful relationship with their children, less yelling at and use of corporal punishment with children, and greater involvement in school-related and community activities (Acock and Demo 1999). These differences in parent-child relationships and parenting practices are highly related to children's development of self-concepts.

Although differences between children in married and single-parent families were found, they generally exhibited a small difference in these two types of families with regard to diverse aspects of children's psychological adjustment and well-being

(Amato and Fowler 2002; Amato and Keith 1991; Amato 2001; Demo and Cox 2000). Moreover, family structure was also found to be weaker than the effects of personal and interpersonal variables on children's well-being (Amato and Fowler 2002; Lackovic-Grgin and Dekovic 1991). Regardless, the literature, in sum, provides grounds to include family structure for further examination of its effects on children's self-efficacy and many other study variables specified in the current research.

In discussing the effects of family structure on children's well-being the research cannot omit intertwining associations between family structure and familial social economic status (SES) as well as race/ethnicity. For instance, single-parent families are more likely to exist in poverty; and, African American children are more likely to be reared in mother-headed families with/without extended families (Demo and Cox 2000). Therefore, these three highly interrelated family demographic variables should be included together in order to gauge any confounding effects on the present study variables.

Race/Ethnicity

Bandura (1995) argued that the ethnic minorities often have to surmount both socioeconomic disadvantages and discriminatory barriers in certain learning areas to social mobility; as such, they generally have a lower sense of efficacy beliefs for scientific and technical careers requiring high level of skills. In addition, although in many studies racial differences are frequently confounded by low SES rates, the issue of race/ethnicity is made more complicated by the fact that some minority groups in fact demonstrate greater social status (e.g., occupational prestige) than majority Whites.

Additionally, in some datasets the racial distribution regarding education and income may not present a high correlation between racial identities and SES for a variety of reasons. For example, Whites and Blacks may interpret their efficacy differently because they adopt different reference groups and they use different standards to self-evaluate the domain- and general-efficacy. Martinez and Dukes (1987) suggested that self-evaluations in public domains are based on public standards such as intelligence and academic achievement which often depend on the majority's standard, while self-evaluation in private domains are based on subjects' personal standard. Further, ethnically and ecologically diverse backgrounds of individuals may indicate different types of social networks that may influence parenting practices and parental self-efficacy (Macphee, Fritz, and Miller-Heyl 1996). Differential relations between race/ethnicity and self-efficacy are also documented in the literature. Empirical research thus presents inconsistent results with regard to racial difference in self-efficacy as well as other related self-concepts. Hunt and Hunt (1977) reported lower level of self-efficacy among Blacks as compared to Whites, and similar results from adolescents and young adults were also reported more recently (Smith et al. 1999; Tashakkori and Thompson 1991). However, some studies found opposite results in which Blacks presented higher level of self-efficacy than Whites and Asians among managers (Cianni and Romberger 1995; Walton, Blow, and Booth 2001), while no significant relations between race and self-efficacy was also found in research (Quinn, Hazen, and Martin 1996). This research suggested that self-efficacy was correlated to family of origin but not to race and gender.

Moreover, global self-efficacy has been found more parallel among races/ethnicities because it composes of multiple measures of causality or pertains to various situations so that the subjects have more freedom to select standards to evaluate their efficacy. That is, children's perception of general self-efficacy is a compounded measure so that the racial differences in each aspects of self-efficacy measure are less visible, since most people more or less to think of their strength and weakness in terms of their own choices of standards. Early research showed that Blacks were more external than Whites in perceptions pertaining to personal referents but were relatively equal, or even higher than internality in relation to more global and cultural perceptions (Gurin et al. 1969). However, it seems possible that self-efficacy is more likely to be transmitted among high SES Whites because these families are more likely to hold conventional values and emphasize parent-child relationships, which may permit greater intergenerational transmission of self-efficacy. It is also arguable that a relative stronger intergenerational parallelism of self-efficacy can be observed among Latinos since they have more prevalent traditions of being Catholics and a greater emphasis on family. Such traditions may influence the effect of transmitting self-efficacy independent of SES and differentiate them from Whites and Blacks. Given the complicated relations between race/ethnicity and self-efficacy, no specific direction of correlation will be hypothesized in the present study.

Gender

Given that children may have differential interactions and relationships with mother and fathers, the specification of contingencies such as gender in the

mother/father-daughter/son dyads might increase the degree of causal influence. For example, mother-daughter dyads may experience higher degrees of intergenerational transmission (Boyd 1989) due to their intense affective relationship relative to other dyads (Kandel 1990; Rossi and Rossi 1990; Starrels 1994), their physical proximity, common gender role and experiences (Kaplan and Liu 1999), and their psychological dependency (Curtis 1991). Boys also have less social pressure to differentiate from their mothers than to differentiate from their fathers (Flax 1981). Some evidence suggests that daughters may be more strongly socialized by their mothers, and sons by their fathers (Dornbusch 1989; Rossi and Rossi 1990; Steinberg 1987). Ryu and Mortimer's (1996) intergenerational study found that transmission of occupational values between parents and adolescents only occurred in father-son dyads where fathers exercise a relatively high degree of self-direction in their jobs. Moreover, mothers' intrinsic and extrinsic values significantly influence girls' extrinsic values, and mothers' intrinsic values also have influence on boys' intrinsic values. Kaplan and Liu's (1999) study of mother-daughter dyads suggested that mothers' psychological distress may preclude the transmission of adequate coping skills, a sense of self-efficacy, and self-acceptance to daughters when the latter face circumstances needing effective coping skills. Generally, research in parent-child relations, socialization processes, and sex identity together suggests gender is an important moderating variable to account for intergenerational transmission of self-concept, social values, and social behaviors.

The differential social expectations incumbent upon men and women may result in lower level of women's self-efficacy, especially for those who want to pursue careers

in traditional masculine-dominated occupations. Research has found that children's perceived efficacy is the key determinant of their perceived occupational self-efficacy and preferred choice of work-life, and such trajectories are fashioned according to gender (Bandura et al. 2001). Moreover, the findings suggest that children's career trajectories crystallize rather early in the developmental process. Then the different socialization processes between girls and boys impair their self-beliefs due to incapability of achieving works in their sex-role domains. Bandura (1995) cited Hackett and Betz (1981), and Jacobs's (1989) studies and emphasized that "women often disbelieve in their quantitative and technical capabilities and their career aspirations are shaped by the family, the educational system, occupational practices, the mass media, and the culture at large" (p.24). In sum, the literature suggests males and females' self-efficacy are somewhat different in the beginning of their developmental stages and are reinforced in the following life trajectories. Therefore, the proposed models need to be analyzed with consideration of gender differences in the development of self-efficacy and its transmission to next generation.

Likewise, empirical studies found that female adolescents reported lower level of self-efficacy than did male adolescents (Cianni and Romberger 1995; Gecas 1989; Tashakkori and Thompson 1991) and similar findings were also found among various stages of adulthood (Mirowsky and Ross 1983; Lachman 1985). Moreover, studies about the stability of self-concepts also found gender differences in directions consistent with gender-role stereotypes (Clausen 1991; Cole et al. 2001b). However, other studies indicate that young children's initial overall self-efficacy may not differ significantly,

but rather differ in domain self-efficacy such as academic efficacy, athletic efficacy, and language efficacy, etc. Such gender differences in domain self-efficacy are developed through the continued gendered differentiation of choices of academic and occupational pathways (Bandura et al. 2001). Therefore, gender differences shaped by processes of socialization and social selection are noteworthy in study of self-efficacy. Analyses of intergenerational transmission of self-efficacy would expect differentiated patterns between girls and boys as suggested by the literature.

Mediating Mechanisms

Parenting Practices

On theoretical grounds parenting patterns would be expected to mediate intergenerational parallelism in self-efficacy. First generation youths who have low levels of self-efficacy would themselves have experienced parenting patterns that communicate to them inability to control outcomes, and the necessity to respond to the demands of others in order to avoid extrinsically administered punitive responses. Coercive parenting responses tend to militate against the development of self-confidence in one's own ability to control one's destiny. As the object of consistently punitive responses the person would likely become self-derogatory, attitudes that would be reflected in the expectation that one could not effectively take action on one's own behalf to produce benign outcomes, since such outcomes are not considered deserved by those who evoke and, perhaps, merit punitive responses. Having developed such attitudes and expectations, first generation youths, now parents, model these attitudes

and expectations for their children and consciously or unconsciously enforce conformity using the same punitive responses with similar consequences.

These theoretical expectations are consistently observed in the empirical literature. Given the stability of self-efficacy across an actor's life stages (Clausen 1991; Clausen and Constance 1998; Kumka 1986; Mortimer, Finch, and Kumka 1982) and the strong correlation between global self-efficacy and parental self-efficacy (Coleman and Karraker 1998), research in the past two decades has shown a positive association between high parental (mainly focused on maternal) self-efficacy and specific adaptive parental skills, such as responsive, stimulating, and nonpunitive caretaking (Donoven 1981; Unger and Wandersman 1985), and a negative association between higher parental self-efficacy and maternal defensive controlling behaviors (Donovan 1981; Donovan, Leavitt, and Walsh 1990), a passive coping style in the parenting style (Wells-Parker, Miller, and Topping 1990), and use of coercive discipline (Bugental, Blue, and Cruzcosa 1989). In summary, the literature suggests that parents who have higher self-efficacy are less likely to exert coercive parenting practices. Further, feelings of self-efficacy may negate the impact of uncontrollable environment circumstances that low socioeconomic status parents often face in daily life (Coleman and Karraker 1998). Parents' incapability to cope with adverse life circumstances has been associated with learned helplessness, and attenuation of feelings of competence in the parenting role, and in turn, has stimulated the use of coercive parenting (Bugental et al. 1989).

The negative feelings of coping with adverse circumstances can spill over to other aspects of parental life such as parental role and thus arouse feelings of low competency. The process is cumulative through one's life trajectory, rather than being a snap shot in time. According to Bandura's (1977, 1989) social learning theory, past experiential history (successes and failures to accomplish life goals) influences an individual's self-efficacy. Individuals develop a degree of self-efficacy via vicarious experience: they watched others engage in certain activities and generated estimations of their own capacity for mastering similar activities. Such self-efficacy is also influenced by others' verbal feedback regarding one's potential for accomplishment in a given area. Finally, one's emotional arousal contributes to development of self-efficacy. Higher level of aversive psychological arousal is likely to be associated with expectations of future failures, and thus affects one's perception of self-efficacy. Low efficacious individuals tend to rapidly lose faith in themselves when failure results and expect more failure in the future (Bandura 1989). According to the literature, the development of parental self-efficacy belief seems to reciprocally interact with parental behaviors and attitudes, and, specifically, with parenting practices that affect the child's psychological well-being.

Luster, Rhoades, and Haas (1989) found maternal social class to be related to maternal values and childrearing beliefs, and that these values and beliefs predicted parenting styles. Mothers who valued self-direction were more likely to score highly on measures of maternal involvement and warmth than were mothers who valued conformity. Thus, self-efficacy may transmit the effects of social class of parents on

later parenting practices because of the parental values exerted in children's immediate socioenvironments. Teti and Gelfand's (1991) research is particularly noteworthy because they found maternal self-efficacy operated as a mediating variable that accounted for the relationship between diverse psychosocial variables (such as demographic status, maternal depression, and social marital support) and parenting quality. That is, they observed that various psychosocial variables do not directly attenuate parental functioning, except through their ability to undermine maternal competency perceptions. This pattern of transmission then influences children's self-evaluation and beliefs about themselves through parental discipline or other dimensions of parenting practices.

In the everyday lives of children, experiences with parents are inextricably linked. Whitbeck, Simons, Conger, Lorenz, Huck, and Elder (1997) found that the use of inductive parenting style (explanations or reasons in disciplining) and avoidance of harsh parenting style (yelling, spanking, corporal punishment toward children) contribute to children's self-efficacy and positive adolescent development (Patterson 1982). A child's self-efficacy is also associated with consistent parental support (parental sensitivity, predictability and school involvement) which was measured in two points of time (Juang and Sibereisen 1999). Research on parenting styles showed that authoritative parenting was positively related to several self-perceptions (Klein, O'Bryant, and Hopkins 1996) and self-esteem (Buri 1989; Pawlak and Klein 1997), while authoritarian parenting was negatively related to self-esteem (Buri et al. 1988). In summary, the literature suggests that parental self-efficacy may transmit to offspring

through the effects of parenting practices, as well as role modeling of self-efficacy as suggested by social learning theory (Bandura 1977). In the present study, I focus on (the absence of) 1) coercive parenting, as a mediating variable of intergenerational transmission of self-efficacy (the development of self-efficacy should be most affected by this category of parenting because it directly threatens the child's autonomy); and 2) communicative parenting, as the second mediating variable of intergenerational relationship of self-efficacy (according to the literature, it seems reasonable to infer that high self-efficacy parents are more likely to encourage their child for achievement by verbal persuasion of their children, which should reflect on the degree of parent-child interactions and communications).

Educational Attainment and Parental Adult Self-Efficacy

On theoretical grounds parental educational attainment would be expected to mediate the intergenerational transmission of self-efficacy. First generation (G1) adolescent self-efficacy would increase the youth's self-confidence and motivation to attain high(er) levels of education. Educational attainment, in turn, would increase the youth's self-efficacy by increasing skills, understanding of one's own capabilities, and consequent self-confidence.

These expectations are warranted given the extensive theoretical and empirical literature on the subject. For adolescents, school is one of the main realms where they compete with other peers and gain self-perception as efficacious persons and increase feelings of self-worth (Eccles et al. 1997; Rosenberg and Simmons 1971). Bandura and colleagues (1996) found that children's perception of academic efficacy, social efficacy,

and self-regulatory efficacy contribute to academic achievement and attainment both directly and through promotion of higher educational aspirations. Such results are understood to be the case because those adolescents who feel a stronger perception of self-efficacy are more likely to set goals and well-structured plans (Skinner, Zimmer-Gembeck, and Connell 1998). Since educational attainment reflects the resources actors possess to enact efficaciously, efficacious adolescents are more likely to prepare their education as valuable resources for future occupation and career development (Bandura 1990). Betz and Hackett (1981) and Lent and Hackett (1987) showed that if one perceives a high degree of occupational efficacy one will consider more choices for future careers, and more importantly, will prepare for this through higher education.

While one's self-efficacy affects his/her educational attainment, the latter can also have an impact on offspring's self-efficacy because children observe their parents' educational and career experiences ("vicarious experience", see Bandura 1989). In addition, efficacious parents are better able to provide avenues (e.g., encouragement, and/or the parents often occupy higher social status) enhancing their children's beliefs in their own potential. Grabowski, Call, and Mortimer (2001) found that young adolescent's economic self-efficacy fosters educational expectation and future educational attainment (months from post-secondary education). They also found that parental educational attainment influences the child's economic self-efficacy through an increase in grade point average. This research supports the proposition that self-efficacy influences educational attainment, and that parental educational attainment affects the child's self-efficacy.

Moreover, self-efficacy and educational attainment are mutually influential, indicating that academic achievement is contingent with prior and future self-efficacy. However, prior research has addressed less the reciprocal relationships between educational attainment and self-efficacy empirically. The present study thus attempts to examine the mediating linkage of parental educational attainment on parental adult self-efficacy, and in turn on offspring's self-efficacy through intergenerational transmission of self-efficacy. In sum, the literature suggests that one's educational attainment is affected by personal beliefs of self-efficacy, and in turn facilitates the development of adult self-efficacy, as well as the development of offspring's self-efficacy by encouraging children to educational excellence.

Educational Expectation

Earlier studies have suggested that high parental academic expectations enhance adolescents' academic aspirations and achievement (Sewell and Hauser 1975), which are highly related to child's development of self-efficacy. For instance, Maibach and Murphy (1995) and O'Leary (1985) reported that experiences of mastery foster high perception of self-efficacy and an expectation of successful performance. Adolescents who held a stronger internal locus of control described their mothers as more nurturing and using more achievement pressure (MacDonald 1971). The results, at least, was then interpreted in terms of the mediating effects of goal-setting between parental expectation and children's locus of control. Parents with higher adolescent self-efficacy are not only more likely to plan and set goals (Clausen 1993), invest in education, and prepare for occupational achievement (Skinner et al. 1998), but also are more motivated and

efficient (Hom and Murphy 1983). Grabowski et al. (2001) found that young adolescent's economic self-efficacy fosters their own educational expectation and future educational attainment; however, the effect of parental educational expectation on child's self-efficacy was not examined in the study. That is, the higher perception of self-efficacy in adolescence encourages individuals to pursue more successful experiences in school and increase the likelihood for their success in adulthood. This long-term rational projection (Morgan 1998) was motivated by parental self-efficacy in adolescence and was accomplished accordingly in the later life stages. Furthermore, such parents are more likely to encourage their children to set goals for a higher educational trajectory because of their own experiences in such a trajectory. Nevertheless, one study suggested that the goal-setting should be made by children rather than by parents to have a significant effect on the children's later achievement and derived self-efficacy (Hom and Murphy 1983).

In sum, this theoretical model indicates that high self-efficacy parents hold high expectation for their children, provide information and skill for success, and help children to set their (own) goals. Such a process is usually well planned by parents because of their past experiences in success and their expectation for children's success in similar fashions. Moreover, these expectations and goals, as well as the planning for achievement help children's establishment of self-confidence (by academic achievement) and to be more reflective about their thinking and learning processes. Finally, the well-planned processes (by providing information and skills from parents to

children for better performance in school) bring mastery experience, which in turn enhances children's perception of self-efficacy.

Parental Occupational Complexity

Research has also documented a strong relationship between parental occupation and adult self-efficacy. For instance, Kohn and Schooler (1978, 1983) suggested reciprocal relationships between specific working conditions (e.g., degree of supervision, routinization, and substantive complexity of the job) and workers' psychological such as 'intellectual flexibility' and 'self-directedness.' They argued that increased opportunities for decision-making, increased the likelihood for job complexity and variety (via the socialization process) and the likelihood that workers value self-directedness above conformity. Many similar findings also reported that work autonomy, flexibility, and complexity are associated with the development of workers' domain and/or general self-efficacy (Gecas and Seff 1987; Lee, Dedrick, and Smith 1991; Motimer and Lorence 1979; Mortimer, Lorence, and Kumka 1986; Spenner and Otto 1985; Staples, Schwalbe, and Gecas 1984). Recently, Ross (2000) analyzed a national probability sample of employed persons and found significant effects of autonomous work, creative work, and social interaction at work on the sense of personal control. Conversely, workers who value self-directedness are also more likely to select jobs with the abovementioned work conditions (Kohn and Schooler 1973) because occupational self-directedness influences workers' intrinsic values in work (Ryu and Mortimer 1996). Although empirical studies found significant reciprocal effects

between work conditions and the development of self-efficacy, their magnitudes seem tend to range from small to moderate.

Another line of research, however, provides some theoretical explanation and empirical evidence about how parental occupational conditions affect children's psychological well-being (Cooksey, Menaghan, and Jekielek 1997; Menaghan and Parcel 1991). Parents' occupational conditions affect their cognitive functioning and emotional well-being, which increase their abilities to build social capital. That is, parents are socialized by their work values and transmit these values to other domains of their lives, such as parenting. Empirical studies have found that these values engender similar expectations for their children (Kohn and Schooler 1983; Kohn, Slomczynski, and Schoenbach 1986; Siegal 1984). Specifically, when parents' work is more complex and more autonomous, parents will less likely value behavioral conformity in their children (Kohn and Schooler 1983; Spade 1991). Moreover, such parents express more warmth and involvement towards their children, are less restrictive of their children's actions, and give less corporeal punishment (Luster et al. 1989).

With regard to the development of self-efficacy among children, Menaghan and colleagues (Menaghan, Kowaleski, and Mott 1997; Menaghan and Parcel 1991; Parcel and Menaghan 1994) examined work socialization theories and found that occupational complexity of mother's work positively affected home environments for their children and children's emotional well-being. This effect was also found between fathers and children (Menaghan et al. 1997). This line of research suggests that working conditions directly influenced workers' psychological characteristics and indirectly affected their

parenting behaviors. Parents whose occupations were complex tended to make more effort interacting with people than their counterparts who had to fit themselves in with the surroundings of simplified but time-constrained jobs. The former group valued the high degree of self-direction in their jobs and thus tended to demonstrate increased respect towards children's motivations for different behaviors. These values likewise directed parental socialization of their children towards independence, self-confidence, and a positive self-image. Thus, these motivated efforts and behaviors increased children's chances for success, enhanced their level of performance, and consequently affected higher self-efficacy. Besides, children in such home were provided with responsive and stimulating environments, which facilitated parents sharing their social and human capital with their children and in turn congruency of children's and parents' values. Additionally, occupation complexity may also have moderated some adverse effects of single-parenting families. For example, the adverse effect of single mothering on children's cognitive stimulation was also greatly reduced if mothers worked in occupations providing high degree of complexity (Menaghan et al. 1997).

Parental Substance Use

A negative association between self-efficacy and substance use among adolescents and young adults has been observed in the literature (Aas et al. 1995; Chung and Elias 1996; Hays and Ellickson 1990; Kim 2001; Ludwig and Pittman 1999; Newcomb and Harlow 1986; Sadowski, Long, and Jenkins 1993; Seeman and Anderson 1983), although few inconsistent results have also been reported (Graham 1996). Many of the studies focused on prevention and treatment of drug use, smoking and drinking

(Greeley, Swift, and Heather 1993; Hansen et al. 1991; Hays and Ellickson 1990; Niaura et al. 2002). These studies examined how multiple domains of self-efficacy were capable of preventing initiation in substance use (resistance self-efficacy), reducing substance use (harm-reduction self-efficacy), achieving the goal of abstinence (action self-efficacy), coping with relapse crises (coping self-efficacy), and recovering from slips or lapses (recovery self-efficacy) (Alan, Baer, and Quigley 1995). In general, the literature demonstrates the importance of self-efficacy in predicting the prevention, reduction, and cessation of substance use.

However, these studies, albeit using longitudinal data, often examined the relationship of self-efficacy and substance use only over short intervals. Thus, they do not provide evidence for long-term effects of adolescent self-efficacy on adult substance use. To date, longitudinal research has not offered sufficient evidence of the stability of self-efficacy over the life course possibly due to the expense and difficulty of longitudinal research (Gecas 1989). Most of these studies examined some other highly relevant self-concepts such as competence and locus of control rather than self-efficacy. These studies suggest that self-efficacy (or related self-concepts) is a fairly stable self-assessment (Cole, Jacquez, and Maschman 2001a; Gurin and Brim 1984; Kulas 1996; McGuire et al. 1999; Mortimer, Lorence, and Kumka 1986). Some studies investigated the stability effect during the periods between middle childhood and late teens (Cairns et al. 1990; Cole et al. 2001a; Cole et al. 2001b). Others examined such an effect from late adolescence to young adulthood in twenties and thirties (Clausen and Constance 1998; Mortimer, Finch, and Kumka 1982). This line of research examined the stability of self-

efficacy with interview intervals longer than that in the psychological research (generally ranging from one year to ten years except for Clausen's research). For instance, Gurin and Brim (1984) conducted a two-year study and found a stability coefficient for "personal efficacy" of .78. Mortimer, Lorence, and Kumka's (1986) ten-year panel study of college students also revealed a stability coefficient of .73 for "self-competence." Clausen (1991) merged data from three Berkeley longitudinal studies of respondents initially taken as adolescents and revealed that subjects' "competence" are highly stable when these adolescents were in their thirties (.52) and the association over the ensuing ages of 53-62 for males was even stronger (.72), while the association was slightly weaker for females (.46). In this study, competence was conceptualized as personal traits of self-respect, feeling of self-efficacy, realistic goal setting, intelligence, and dependability (Smith 1968). However, the high stability of competence personality was remarkable among subjects who had been highly competent in adolescence, due to the reinforcement of educational attainment, career choices, and successful family relations with a plan of timing and preparation over individual life course. Such stability coefficients in efficacy-related concepts over life-span provided a general basis for proposing the hypothesis that adolescents' self-efficacy is fairly stable over adulthood and its negative influence on adulthood substance use is thus expected, net of the effects of related demographic variables.

Research and theories of life course and developmental perspectives have long suggested that the associations between psychological states and delinquent behaviors are reciprocal in an individual life course (see Thornberry (ed.) 1997 for a more

extensive introduction of developmental theories of crime and delinquency). In such processes, an individual's self-efficacy is either increased or decreased depending on what life trajectories he/she has been through and what normal/abnormal transitions he/she has experienced (e.g., premarital birth, high school drop out, etc.). Most people who go through normal trajectories in a timely fashion as expected by social norms usually find a slight increase (while stable) in self-efficacy due to positive experiences and a slight decrease in old age due to gradual decrement in capacities (Cole et al. 2001b; Flammer 1995; Gecas 1989) although fluctuations do occur during transitional periods (Cole et al. 2001b; Gecas 1989). The concepts of trajectory and transition, in part, highlight and offer the explanation for the potential long-term effect of adolescent self-efficacy on adult substance use.

Parents in abnormal trajectories are less capable of exerting constructive parenting towards their children through a complex interplay of affective, motivational, cognitive, and behavioral pathways (Coleman and Karraker 1998). For example, these parents tend to give up quickly (Bandura 1989; Bugental and Cortez 1988), have an overwhelming sense of futility, and use erratic, inconsistent parenting (Coleman and Karraker 1998). Such psychological states have been found to be significantly related to substance use in empirical studies (see review by Kaplan 1996). As a result, children of substance users observe these behaviors, are more likely to mimic these same behaviors, and then when confronted with difficult situations, categorize themselves as well as their parents as incapable individuals, in turn repeating these behaviors. In sum, such

psychological influence, in turn, may significantly impede children's development of high(er) self-efficacy (Bandura 1989, 1995).

Control Variables

Informed by theories and empirical studies, the present research should consider several variables which either have effects on or are highly related to the development and fluctuation of self-efficacy. These variables include socioeconomic variables, personal demographic variables, and social demographic variables. Among these variables, gender, race/ethnicity, and family structure are further examined as moderating variables to test the potentially different patterns of intergenerational transmission of self-efficacy. The other demographic variables then are controlled in analytical models including educational attainment of grandparents, children's (G2) age, and self-esteem of both generations.

Since any observed association between G1 adolescent self-efficacy and G2 adolescent self-efficacy might be the spurious outcome of the common association of these variables with stable contextual and personal factors such as socioeconomic status or race/ethnicity the present research controlled for these factors.

Individuals' socioeconomic status exerts great influence on life trajectories due to the material and psychological resources available to individuals. The intergenerational transmission of self-efficacy should consider the common influences of stable social structure on individuals so that estimated intergenerational congruence in the present research may be deemed independent of such common influences. For instance, parental economic hardship threatens parental ability to provide sufficiently for

children's needs relative to other children, and thus impairs child developmental outcomes. Poverty may function by undermining both G1 and G2 subjects' self-efficacy. As Coleman and Karraker (1998:63) noted: "impoverished parents' abilities to raise their children successfully in the face of unsupportive communities and perpetual financial burdens seems to be directly related to the amount of personal control that they feel they are able to exercise." Low wages hamper parental efforts to provide adequate material resources for their children, and produce feelings of distress, which affect parent-child interactions (Siegal 1984). Two decades ago, Stolte (1983) reported that actors' evaluation of their self-efficacy varied with their (low or high) status. Research by Bandura et al. (1996) indicated that familial socioeconomic status had an indirect effect on academic efficacy through its effects on parental aspirations and children's prosocial inclinations. Furthermore, a recent study linked both individual data from the 1986 American Changing Lives Survey and contextual information from the 1980 census indicated that high proportions of neighborhood unemployment and public assistance are associated with low level of self-efficacy above and beyond individual-level SES variable (Boardman and Robert 2000). Parental socioeconomic status also affects parenting practices, and in turn results in differential effects on children's outcomes. For example, Lareau (1987) and McNeal (1999) argue that middle- and upper-class parents possess more cultural capital than working-class or poor parents, which affects the quality and quantity of parental involvement in schools and in extra-curricular activities that parents can provide their children. This consequently increases

children's opportunities and support for participating in competitive activities with peers, which again should foster and promote children's development of high(er) self-efficacy.

Educational attainment is one of the most influential indicators of SES, which is associated with one's perception of self-efficacy (Bowleg, Belgrave, and Reisen 2000). Recently, a theoretically informed study found that economic self-efficacy influenced educational attainment both directly and indirectly, although global self-efficacy had no direct effect on educational attainment but did predict subsequent economic self-efficacy (Grabowski et al. 2001). Although Grabowski and associates only found an indirect relationship between self-efficacy and educational attainment, their research did indirectly support the supposition that self-efficacious individuals were more likely to prepare themselves for success with a better education.

Socioeconomic circumstances as a control variable for a variety of practical reasons is taken to be reflected in the number of years of education reported by parental (G1) subjects to have been completed by their parents (the grandparents of G2 youths). G1 youth's parental education was modeled as a latent construct with two indicators: number of years of schooling completed by G1's father (G2's grandfather); and, number of years of schooling completed by G1's mother (G2's grandmother).

Although self-efficacy has been observed to be a fairly stable self-assessment in the literature (see aforementioned discussion); the nature of children's self-concept appears to change across development. Cole and associates (2001b) examined five self-concepts (including academic and sport competence) in a sample spanned from grade 3 through 11 (from elementary to high school years) and found that destabilization of

some self-concepts occurred between transition grades (sixth to seventh grades and eighth to ninth grades) and increased stability in some other self-concepts. The increasing mastery and independent experiences and acquired instrumental and social skills from early to late adolescence may facilitate adolescents to develop greater feelings of self-efficacy. In addition, adolescents' age is related to their developments of parent-child relationships (thus receive different parenting styles), psychological well-being, and behavioral patterns (and commitment in problem behaviors). Many of these variables are introduced in the present study in that controlling children's age is necessary to the potential effects of age on the correlations between self-efficacy and the other study variables.

Self-esteem is included in the current analyses as a control variable because of several considerations. First, self-esteem is represented as a global, dispositional variable with a great deal of psychological and behavioral outcomes for adolescents, including substance abuse, academic success and failure, crime and violence, and deviant behaviors (see Kaplan 2001). Second, although Bandura (1997:11) extensively differentiates self-efficacy from self-esteem by pointing out that "perceived self-efficacy is concerned with judgments of personal capability, whereas self-esteem is concerned with judgments of self-worth;" it is also true that self-esteem can arise from personal competence in performance and vice versa. The high correlation between self-esteem and self-efficacy (or perceived competence) is also examined in many studies (Gecas and Seff 1989; Judge et al. 2002; Stanley and Murphy 1997). However, other studies showed that these two self-concepts may have differential effects on one's well-being

(Hughes and Demo 1989). Still in other studies, effects on one's well-being show different patterns among demographic groups such as between males/females (Bergman and Scott 2001; Tashakkori and Thompson 1991) and between Whites/Blacks/Latinos (Tashakkori and Thompson 1991). Finally, since self-esteem and self-efficacy are highly-related constructs, some may argue that the intergenerational parallelism of self-efficacy proposed in the present research is probably the results of intergenerational parallelism of self-esteem. Such inquiry can be resolved by including self-esteem into the analyses so that the generational parallelism of self-efficacy is independent from that of self-esteem. Such model specification can not only strengthen the robustness of the present research, but also further examine their reciprocal influences on the other across generations.

Proposed Models

As presented in Figure 3, I estimate a model that specifies the direct and indirect influences of first generation (G1) self-efficacy on second generation (G2) self-efficacy. Higher levels of G1 self-efficacy are expected to influence their behavior when they later become parents so as to display respect for the autonomy of their children and to eschew coercive parenting practices.

The variable of family structure, gender, and race/ethnicity are moderating variables adopted in the present research to differentiate their moderating effects on intergenerational transmission of self-efficacy. Furthermore, it is presumed that the parents of the G1 adolescents were respectful of the autonomy of the G1 adolescents and avoided coercive parenting. Thus, the direct effect of G1 adolescent self-efficacy on

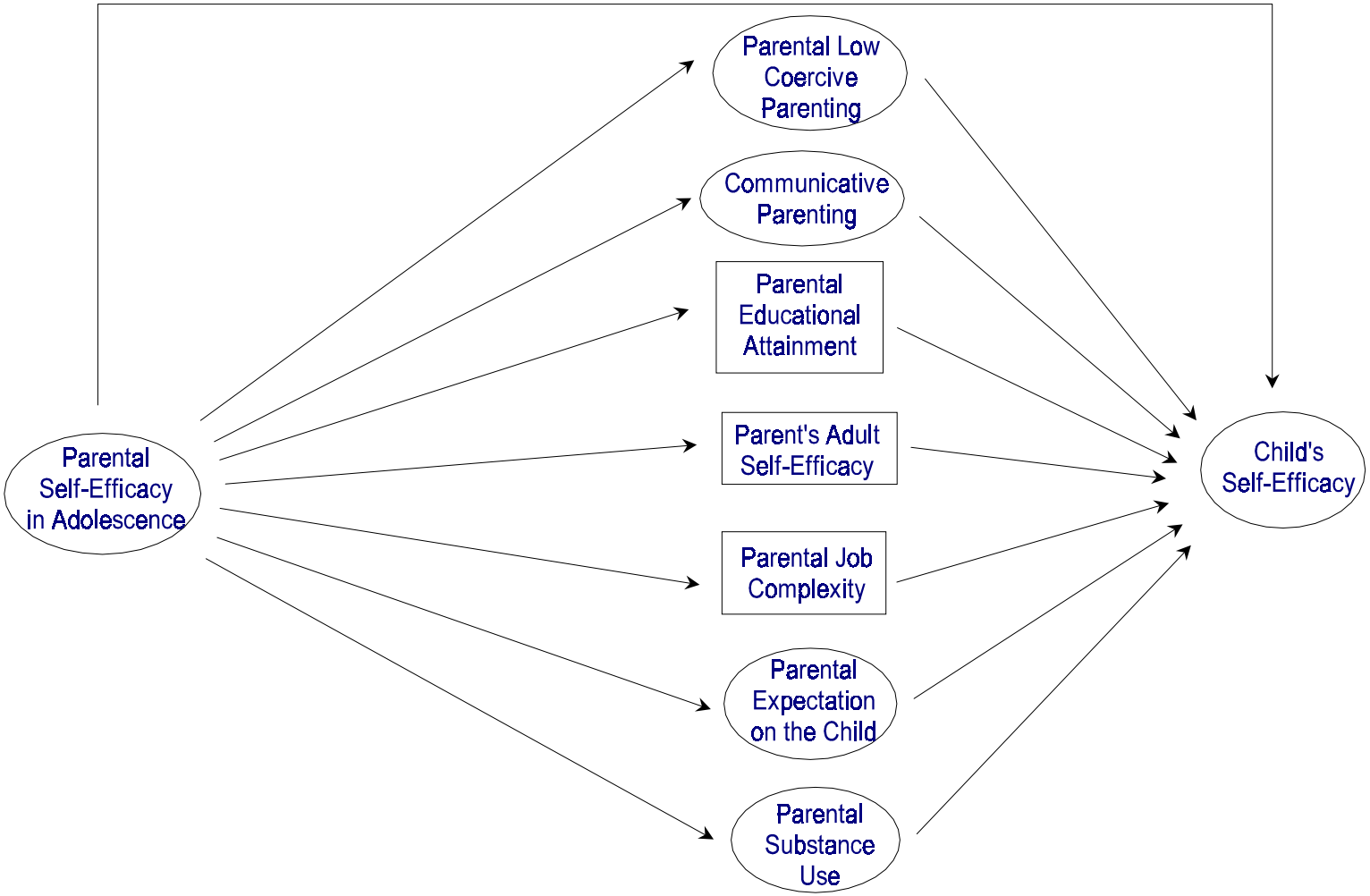

Figure 3. Proposed Model

Note: Mediating variables were specified to be reciprocally correlated.

their later parenting patterns is likely to reflect, in part, the modeling of their own parents' behavior. Low coercive parenting by the G1 subjects in turn influences G2 adolescent self-efficacy by encouraging their autonomy and self-confidence, that is, the consequence of successfully negotiating age-appropriate expectations. Similarly, parental-child interaction can be both the consequence of G1 adolescent self-efficacy and the reflection of the modeling of G1's parents' behavior.

In addition to exercising indirect influence on G2 self-efficacy via G1 parenting patterns, G1 self-efficacy exercises indirect influence on G2 self-efficacy via its influence on G1 educational attainment. G1 self-efficacy presumably raises personal levels of aspiration and skills and so permits higher levels of educational attainment. Educational attainment, in turn, provides levels of experience and success that permits greater expectations of contemporaneous self-efficacy. Similarly, parental self-efficacy in adolescence influences future career choices through educational trajectories, which in turn, reinforces emphasis on self-directedness and autonomy. Such parental socialization processes are thus internalized and valued by parents and then reflected in their parenting practice to reproduce their child's self-efficacy.

In contrast, parents with lower self-efficacy in early adolescence are less likely to adopt healthy coping behaviors to deal constructively with stress. As such, they become more likely to use substances. Thus constrained by past addictions of substance use and long-term psychological self-doubt in adolescence, these individuals become more likely engage in substance use as adults. Then as parents, these individuals model these same behaviors to their children. Through their observation of parental performance, children

learn these behavioral responses, which then diminish the likelihood for their development of positive self-efficacy.

Net of these indirect effects, G1 self-efficacy is specified as having a direct effect on G2 self-efficacy at the same stage in the life course. This effect presumably reflects the modeling of attitudes of self-efficacy that are stable and displayed throughout the life course. Attitudes of self-efficacy manifested by G1 youths when they become parents are communicated to and otherwise observed and learned by G2 youths (Bandura 1977). Moreover, these relationships are hypothesized to hold net of the antecedent influences of age, self-esteem, gender, race/ethnicity and the educational level of the parents of the G1 youths. These control variables are taken to be proxies for a host of stable social, structural, and contextual circumstances that might influence both G1 and G2. As such, they might render any intergenerational correlation of self-efficacy spurious rather than causal.

CHAPTER IV

METHODS

The analyses estimated several Structural Equation Models (SEM) with latent constructs that specify the direct and indirect effects of first generation (G1) adolescent self-efficacy on the self-efficacy of second generation (G2) youths at the same developmental stage, net of the antecedent influences of age, gender, race/ethnicity, self-esteem, and G1 youths' parental education level on the other study variables. Moreover, gender, race/ethnicity, and family structure are further examined as moderating variables in the aforementioned models. Finally, several theoretically-informed mediating constructs are introduced separately to analyses which examine the mediating effects on the intergenerational parallelism of self-efficacy. The significant mediators then are examined together in the full models to compare their relative magnitude in intervening effects. In addition, invariance tests are executed to examine whether the path effects of parental self-efficacy on child's self-efficacy between subgroups are significantly different. However, the tests between intact family subjects and single-parent family subjects cannot be done because some mediating variables include both parents' reports, while only one parent report is available in single-parent family subjects. As a result, comparison (thus only by the size of their unstandardized coefficients) between these two groups is less reliable statistically. That is, the difference between two coefficients cannot be claimed because it may not be significant statistically at a certain level (e.g., $p < .05$).

Sample

The data were gathered in the course of a multigeneration panel study using data from two waves of data collected from first generation subjects (G1) and one wave of data collected from the biologically related offspring of the first generation subjects (G2). The G1 subjects composed a 50 percent sample of the seventh grade students in the Houston Independent School District in Texas in 1971. The subjects responded to self-administered questionnaires in the seventh grade and to household interviews at follow-up (1993-7) when they were 35-39 years of age. The G2 youths were interviewed between ages of 12 and 18. The children's interview was conducted after their parents had been interviewed from several months to over a year. The G1 sample included two groups, first, those who were married and, lived with their spouses; and second, those who were single-parents. The separation of these two subgroups results from the concern that many mediating constructs (e.g., parenting practices) include both parents and children's reports. Thus, intact and single-parent families do not share the same measures in this regard because both parents' reports are not available in single-parent samples. The first sample, then, consisted of 2,279 G1-G2 dyads (G1 subjects and their biologically related children). Only 1,967 of the sample dyads provided complete information for demographic variables. The inclusion of family income decreased the sample size to 1,869. The second sample consisted of 1,616 G1-G2 dyads from single-parent households in which parents and children's developmental stages were similar to those of the first sample. The sample size of the single-parent data also decreased to 1,481, of which the subjects provided complete demographic information. The high

number missing cases in family income further reduce the sample size to 1,115. The sample size among the mediating models may vary owing to the availability of the non-missing variables in each mediating variable. Table 1 and Table 2 present means and standard deviations of variables used in the study for both intact- and single-family groups, respectively. The comparisons between total sample and study sample in each group indicate that the means and standard deviations of the study variables remained almost unchanged while sample size was lessened resulting from missing cases. The only exceptions were that the means of alcohol use and drug use among single-family parents were respectively reduced about 13 percent and 20 percent from the total sample (column 2 in Table 2) to study samples (column 3 in Table 2). This indicates that the dropout single-parent samples might use higher levels of alcohol and drugs.

Comparing the study sample (column 3) with the attrition sample (column 4) both for intact- and single-family groups, however, showed some statistically differences between study and attrition samples in each group. In intact-family group, fathers, parents who reported lower self-esteem in adolescence, and parents who used drugs, tended to be less likely to remain in the sample. In single-family group, cases that were excluded from the study sample were more likely to be fathers, parents who reported lower family average income per capita, parents who had lower adulthood self-efficacy, parents who tended to use alcohol or drugs, parents used more coercive parenting and less (or no) communicative parenting, and parents who held lower educational expectation towards children.

Table 1. Mean and Standard Deviations of the Variables from the Total, Study, and Attrition Samples for Intact-Family Groups

	Total Sample		Study Sample		Attrition Sample	
	n	Mean (Std)	n	Mean (Std)	n	Mean (Std)
G1 Self-Esteem	2160	4.75 (1.69)	1869	4.79 (1.67)	291	4.46 (1.77)*
G2 Self-Esteem	2200	5.80 (1.45)	1869	5.80 (1.44)	331	5.78 (1.49)
Child's Age	2279	12.70 (1.50)	1869	12.73 (1.54)	410	12.55 (1.31)
Boy	2279	0.51 (0.50)	1869	0.52 (0.50)	410	0.49 (0.50)
Father	2279	0.42 (0.49)	1869	0.41 (0.49)	410	0.50 (0.50)*
African Americans	2279	0.17 (0.37)	1869	0.16 (0.37)	410	0.20 (0.40)
Latino Americans	2279	0.14 (0.35)	1869	0.14 (0.35)	410	0.13 (0.34)
Grandmother's Education	2279	6.93 (1.93)	1869	6.92 (1.92)	410	7.01 (1.95)
Grandfather's Education	2279	7.03 (2.47)	1869	7.02 (2.45)	410	7.06 (2.53)
Parental Education	2279	7.64 (2.05)	1869	7.66 (2.04)	410	7.52 (2.12)
Per Capita Income	2160	3.16 (0.85)	1869	3.16 (0.85)	291	3.16 (0.85)
G1 Locus of Control	2218	2.33 (0.81)	1869	2.34 (0.80)	349	2.27 (0.83)
G1 Perceived Control Over Environment	2181	2.27 (0.84)	1869	2.28 (0.83)	312	2.16 (0.86)
G2 Locus of Control	2235	2.54 (0.74)	1869	2.55 (0.75)	366	2.52 (0.71)
G2 Perceived Control Over Environment	2224	2.67 (0.62)	1869	2.67 (0.62)	355	2.69 (0.60)
Parental Adult Self-Efficacy	2243	4.42 (0.95)	1840	4.42 (0.95)	403	4.41 (0.96)
Occupational Complexity	1864	2.08 (0.83)	1517	2.07 (0.83)	347	2.11 (0.81)
Parental Alcohol Use	2279	0.16 (0.69)	1869	0.16 (0.68)	410	0.20 (0.71)
Parental Drug Use	2279	0.18 (0.65)	1869	0.16 (0.58)	410	0.29 (0.88)*
Mother's Report of Coercive Parenting	2273	8.25 (1.80)	1868	8.26 (1.81)	329	9.02 (1.65)
Father's Report of Coercive Parenting	2270	8.10 (1.97)	1865	8.10 (1.99)	324	8.86 (1.66)
Child's Report of Mother's Coercive Parenting	2197	11.56 (2.19)	1807	11.55 (2.18)	405	8.18 (1.78)
Child's Report of Father's Coercive Parenting	2194	10.20 (2.49)	1803	10.15 (2.48)	405	8.10 (1.92)
Mother's Report of Communicative Parenting	2190	9.12 (1.64)	1861	9.14 (1.63)	329	11.29 (1.07)
Father's Report of Communicative Parenting	2155	8.85 (1.72)	1831	8.85 (1.73)	323	10.41 (1.51)
Child's Report of Mother's Communicative Parenting	2194	11.32 (1.07)	1865	11.32 (1.07)	390	11.64 (2.24)
Child's Report of Father's Communicative Parenting	2166	10.28 (1.74)	1843	10.25 (1.78)	391	10.41 (2.54)
Father's Educational Expectation on Children	2164	4.78 (1.06)	1840	4.79 (1.04)	324	4.75 (1.19)
Mother's Educational Expectation on Children	2192	4.79 (1.02)	1863	4.80 (0.98)	329	4.75 (1.18)

* means were significantly different at $p < .01$.

Table 2. Mean and Standard Deviations of the Variables from the Total, Study, and Attrition Samples for Single-Family Groups

	Total Sample		Study Sample		Attrition Sample	
Variables	n	Mean (Std)	n	Mean (Std)	n	Mean (Std)
G1 Self-Esteem	1558	4.49 (1.80)	1115	4.54 (1.75)	443	4.36 (1.90)
G2 Self-Esteem	1590	5.54 (1.60)	1115	5.52 (1.62)	475	5.59 (1.55)
Child's Age	1616	13.58 (1.98)	1115	13.61 (2.00)	501	13.53 (1.94)
Boy	1616	0.49 (0.50)	1115	0.48 (0.50)	501	0.50 (0.50)
Father	1616	0.34 (0.47)	1115	0.22 (0.42)	501	0.60 (0.49)*
African Americans	1616	0.40 (0.49)	1115	0.39 (0.49)	501	0.42 (0.49)
Latino Americans	1616	0.11 (0.31)	1115	0.10 (0.31)	501	0.12 (0.33)
Grandmother's Education	1563	6.70 (1.80)	1115	6.66 (1.79)	448	6.81 (1.83)
Grandfather's Education	1564	6.59 (2.35)	1115	6.60 (2.33)	449	6.57 (2.41)
Parental Education	1615	6.90 (2.03)	1114	6.94 (1.96)	501	6.82 (2.18)
Per Capita Income	1211	2.89 (0.98)	1115	2.92 (0.95)	96	2.54 (1.19)*
G1 Locus of Control	1616	2.09 (0.90)	1115	2.09 (0.88)	501	2.07 (0.94)
G1 Perceived Control Over Environment	1616	2.04 (0.91)	1115	2.08 (0.91)	501	1.97 (0.90)
G2 Locus of Control	1616	2.41 (0.79)	1115	2.43 (0.78)	501	2.38 (0.80)
G2 Perceived Control Over Environment	1616	2.50 (0.73)	1115	2.51 (0.73)	501	2.50 (0.72)
Parental Adult Self-Efficacy	1616	4.27 (1.10)	1115	4.33 (1.04)	501	4.12 (1.21)*
Occupational Complexity	1349	1.79 (0.82)	942	1.76 (0.83)	407	1.86 (0.80)
Parental Alcohol Use	1616	0.37 (1.03)	1115	0.32 (0.97)	501	.49 (1.16)*
Parental Drug Use	1616	0.29 (0.74)	1115	0.23 (0.66)	501	.40 (0.88)*
Parental Report of Coercive Parenting	1265	9.34 (1.72)	1114	9.39 (1.73)	152	10.48 (1.55)*
Child's Report of Coercive Parenting	1284	8.27 (1.95)	971	8.41 (1.93)	302	10.42 (2.86)*
Parental Report of Communicative Parenting	1264	10.83 (1.47)	1112	10.88 (1.45)	151	8.99 (1.67)*
Child's Report of Communicative Parenting	1211	11.03 (2.54)	909	11.23 (2.39)	313	7.85 (1.94)*
Father's Educational Expectation on Children	759	4.34 (1.33)	678	4.40 (1.29)	81	3.81 (1.55)*
Mother's Educational Expectation on Children	1198	4.44 (1.25)	1057	4.50 (1.21)	141	3.98 (1.47)*

* means were significantly different at $p < .01$.

In the two-parent family sample, slightly more than two-thirds of the sample (68.6 percent) were white-Anglo, almost a sixth of the study sample (15.9 percent) were African American, and 14.5 percent were Latino Americans. Nearly eighty-nine percent of the participating parents graduated from high school and about one-third of parents (34.5 percent) had a college degree. In addition, 61.6 percent of the parents reported their total household income as $50,000 or more. In the single-parent family sample, the proportion of white-Anglo dropped to half of the sample (50.1 percent), African Americans increased their representation to two-fifths (39.5 percent), and only 10.4 percent were Latino Americans. Nearly eighty percent (79.3 percent) of the participating parents graduated from high school and only 4.6 percent of parents had a college degree. However, only 32.8 percent of the parents reported their total household income as $50,000 or more, for which the proportion is slightly greater than the half of that in two-parent sample. The relatively low household income among single-parent families as compared to two-parent households is, in part, attributable to the number of two-parent families with dual incomes, and such attribution of household income by family structure is also documented in many recent studies (see White and Roger's review, 2000).

Measures

Self-Efficacy

The latent variable self-efficacy consists of two observed indicators: locus of control (LC) and perceived control over one's environment (PCOE). Locus of control refers to the perceived relationship between an individual's actions and outcomes, and is

seen primarily as a personality characteristic of the individual (Lefcourt 1991). The scale of locus of control includes 3 items (yes = 1, no = 0): it's mostly luck if one succeeds or fails; you can do very little to change your life; and often I feel that I don't have enough control over the direction my life is taking. The scale of perceived control over one's environment referring to expectations of success through one's own efforts, also contains 3 items (yes = 1, no = 0): I doubt if I will get ahead in life as far as I would really like; as long as I stay with the straight life, I will never make it; I have never been able to accomplish as much as my family wanted me to. All of the items measuring self-efficacy were recoded so that a greater score indicates greater locus of control and higher perceived control over the environment. Self-efficacy was measured both at G1 Time 1 (G1T1) and G2 Time 1 (G2T1) in order to examine the intergenerational transmission of psychological states from parents to children.

The Cronbach's alpha for the measures of locus of control was .40 for parent's report and .46 for child's report; and that for the measures of perceived control over one's environment was .44 for parent's report and .40 for child's report. The low reliability of self-efficacy measures was accepted for several reasons. First, the six items distributed in two measures of self-efficacy were only valid items available in the adopted data. Second, these measures have construct validity because they are negatively associated with three psychological distress variables: self-derogation ($r = -.38$ with LC and -.44 with PCOE, $p < .001$ for the first generation; $r = -.42$ with LC and $r = -.41$ with PCOE, $p < .001$ for the second generation), depression ($r = -.26$ with LC and -.28 with PCOE, $p < .001$ for the first generation; $r = -.38$ with LC and $r = -.39$ with

PCOE, $p < .001$ for the second generation), and anxiety ($r = -.22$ with LC and $r = -.23$ with PCOE, $p < .001$ for the first generation; $r = -.28$ with LC and $r = -.25$ with PCOE, $p < .001$ for the second generation). The negative associations between self-efficacy and psychological distress measures were paralleled to theory and prior research findings (Liu, Kaplan, and Risser 1992; Troits 1994). Finally, these two measures of self-efficacy were related to the other study variables as theories expected in the present analyses. Nevertheless, cautious interpretations of the study findings are suggested due to the low reliability of self-efficacy measures.

Mediating Measures

Seven variables were modeled as mediating the intergenerational parallelism in adolescent self-efficacy: coercive parenting (from G1 and G2); communicative parenting (from G1 and G2), G1 educational attainment, G1 adult self-efficacy, G1 educational expectation, G1 adult substance use, and G1 occupational complexity.

Coercive parenting is modeled as a latent variable reflected in two measurement variables composed of G1 parent reports at follow-up and G2 youth reports, respectively, on five items asking parents and children, when children do something wrong, how often does the parent (often = 3, sometimes = 2, hardly ever or never = 1): send them to their room or make them stay alone; physically punish them; act cold or unfriendly; take away privileges; and express anger or speak sharply. These five items were recoded and summed so that a higher score indicates coercive parenting. The Cronbach's alpha was .52 for mother's report and was .55 for father's report. The

Cronbach's alpha was .52 for child's report of mother's coercive parenting, and was .60 for child's report of mother's coercive parenting.

Communicative Parenting is also modeled as a latent variable from two measurement variables of 1) G1 parents' reports at follow-up on four items asking parents, how often does (often = 3, sometimes = 2, hardly ever or never = 1): the children discuss things that happened at school with father/mother; the children discuss personal problems with father/mother; the parent openly show affection to the child; and the child show affection to the parent; and 2) G2 youth reports on 5 items asking children, how often does the child (often = 3, sometimes = 2, hardly ever or never = 1): discuss personal problems with father/mother; openly shows affection to father/mother, discuss things that happened at school with father/mother; and how often his/her father/mother openly shows affection to you; and discusses his/her personal problems with father/mother. The summed items were recoded so that a greater score indicate greater communicative parenting. The Cronbach's alpha was .69 for mother's report and was .78 for father's report. The Cronbach's alpha was .73 for child's report of mother's coercive parenting, and was .79 for child's report of mother's coercive parenting.

Educational attainment is modeled as a perfectly measured indicator construct reflecting the number of years of education received.

G1 adult self-efficacy is not identical to that measure taken during early adolescence since all items were not available in the adult questionnaire. The measure of G1 adult self-efficacy consists of five items asking parents in the past month whether he/she (yes = 1, no = 0): felt he/she could handle or cope with any serious problem or

major change in life; have little control over the things that happen to him/her (recoded); can do just about anything he/she really set in mind to do; often feel helpless in dealing with the problems of life (recoded); and felt that there is little he/she can do to change many of the important things in his/her life (recoded). The higher scores indicate greater self-efficacy. The construct is reflected in the single 5-item measure. The Cronbach's alpha was .58.

G1 educational expectation is a latent construct composed of two items (two observed indicators) asking father and mother's the highest level of education he/she realistically expects his/her child to complete in a range of choices from less than high school, graduate from high school, some college, graduate from college, to getting into a graduate or professional school. The higher score indicates the higher expectation parents hold for their child.

G1 adult substance use consists of two observed indicators: alcohol use and drug use. Alcohol use includes items asking parents in the past 12 months if they (yes = 1, no = 0): have often been under effects of alcohol or suffering its aftereffects while at work or school or while taking care of children; have often been under effects of alcohol or suffering its aftereffects while in a situation which increased his/her chances of getting hurt (e.g., driving, using knives, swimming, etc.); have any emotional or psychological problems from using alcohol; have a strong desire or urge to use alcohol that he/she could not resist it or could not think of anything else; have a period of time of a month or more when he/she spent a great deal of time using alcohol or getting over its effects; have often used much larger amounts of alcohol (or for a longer period of time) than

he/she intended to when he/she began; and have ever found that he/she had to use more alcohol than usual to get the same effect or the same amount had less effect on him/her than before. These items were calculated such that increased scores indicated increased levels of alcohol use in situations. The measure of alcohol use does not directly measure the frequency or amount of the alcohol used by parents, but rather the situations in which the parents used alcohol and the seriousness of the effects of alcohol use upon the parents.

The variable of drug use consists of nine items asking parents in the past 12 months if they used the following drugs without a doctor's prescription: sedatives, tranquilizers or "never pills", amphetamines or other stimulants, analgesics or other prescription painkillers, inhalants, marijuana or hashish, cocaine or crack or free base, LSD or other hallucinogens, and heroin. The higher score indicates the greater drug use by the parents. The present measure, however, does not indicate the exact frequency of drug use, except that frequent drug users often use many more varieties of drugs than occasional users do. The Cronbach's alpha was .88 for variable of alcohol use, and was .65 for variable of drug use.

G1 occupational complexity is a single item in which parents indicate their occupational positions in companies (e.g., manager) or categories (e.g., farmers). These occupational positions and categories are then divided into three groups in terms of their putative job complexity. The categorization result does not precisely represent parental occupational complexity but rather reflects a rough common sense typology of job complexity. To assure validity of this measure, only three categories were recognized,

although more categories may execute a more informative model as to how job complexity may affect one's self-efficacy and vice versa.

Control Measures

Age, grandparents' educational attainment, and self-esteem are controlled in the proposed models although family structure, race/ethnicity, and gender are also treated as control variables, when they are not used as moderating variables in all-subjects-included models. Age was measured as years of ages when the G2 adolescents were surveyed. Grandparents' educational attainment was measured by years of education grandfathers and grandmothers received as reported by the G1 adults in their young adulthood. Adolescent self-esteem in G1 and G2 was measured at the same time when self-efficacy was measured. Both generations used seven identical items investigating their general feelings that subjects have toward themselves. These items also appear in Kaplan's self-derogation scale (Kaplan and Pokorny 1969) that was derived from Rosenberg's General Self-Esteem Scale (Rosenberg 1965). These items include (yes = 1, no = 0): I wish I could have more respect for my self (recoded); on the whole, I am satisfied with myself; I feel I do not have much to be proud of (recoded); all in all, I am inclined to feel that I am a failure (recoded); I take a positive attitude toward myself; at times I think I am no good at all (recoded); and I certainly feel useless at times (recoded). The greater score indicates that subjects held the greater self-esteem. The Cronbach's alpha was .61 for parent's report, and was .66 for child's report.

Moderating Measures

Family structure (single- and two-parent households), race/ethnicity (Whites, Blacks, and Latinos), and gender (by parents and children's gender and parent-child dyads) are moderating variables in the present research. The proposed models may be analyzed differently among these subgroups in terms of the suggestions of literature. Some descriptive analyses reported in the sample section have demonstrated that single- and two-parent samples have overt differences in the distributions of household income and racial compositions. Several models are also estimated by dividing the total sample into two subgroups in terms of their family structure. However, race/ethnicity and gender will be treated as control variables in the total sample model and the subsample models. Race/ethnicity is reflected in two dummy variables, African American and Latino American with non-Latino Whites as the omitted category; males/females is coded as another dummy variable (males = 1, females = 0).

Analysis

Analyses were conducted using LISREL 8.14 (Jöreskog and Sörbom 1993). LISREL provides maximum likelihood estimates (MLE) of model parameters, and estimates the measurement model and the structural model simultaneously. A baseline model was first estimated in which G1 self-efficacy predicted G2 self-efficacy with and without considerations of control variables. Second, the samples were divided in terms of the moderating variables: family structure, race/ethnicity, and gender. Then these subgroups were analyzed to examine whether the intergenerational parallelism of self-efficacy was different in magnitude among these subgroups. Invariance tests of this

effect were conducted to examine whether the differences between subgroups were statistically significant. Next, several mediating variables were introduced separately to determine whether they mediate a significant indirect effect between G1 and G2 self-efficacy in the total sample model. Finally, a full model was analyzed to examine two key elements in the model: the relative strength of the significant mediators and the total intervening effects of these mediating variables.

To assess data-model fit, I report ratio of chi-square to degree-of-freedom, Steiger's Root Mean Square Error of Approximation (RMSEA, Browne and Cudeck 1992), GFI (The Goodness-of-Fit Index), AGFI (Adjusted Goodness-of-Fit Index), NFI (Normed Fit Index), NNFI (Non-Normed Fit Index), CFI (The Normed Comparative Fit Index), and IFI (Incremental Fit Index) (see Mueller 1996; Newcomb 1990). In practice, values of GFI, AGFI, NFI, NNFI, CFI, IFI above .90 are considered to be indicative of a good overall fit; and researchers can conclude that the observed data indeed fit the model better than no model at all (Joreskog and Sorbom 1993). A ratio of chi-square to degree-of-freedom less than 3.0 indicates a good fit (Hayduk 1987) and values exceed 5 are seen to be questionable (Bollen 1989); however, there is no consensus on a "good" fit ratio among researchers. An RMSEA smaller than .05 indicates a close fit, and an RMSEA between .05 and .08 reveals a reasonable fit (Browne and Cudeck 1992).

CHAPTER V

FINDINGS

Descriptive Results

Table 1 and Table 2 (column 3 of each table) present descriptive statistics (means and standard deviations) for the study variables among intact families and single-parent families, respectively. Adolescents who are raised in intact families seem to report greater levels of psychological well-being and better family environments than their counterparts raised in single-parent family. The following paragraphs report significant differences between subgroups in terms of the results of T-test. The significant level of T-test results were reported if they reach at $p < .05$, whereas the extreme majority of the differences were at level of $p < .01$. These descriptive statistics generally fit commonly accepted findings in the literature (Amato 2001; Amato and Keith 1991). For instance, children in intact families reported greater self-esteem and self-efficacy, as did their parents, both as adolescents and adults. Intact families also tended to provide better social and economic environments for children in many aspects, such as greater family income per capita (and household income as well, not shown in the Tables), higher levels of grandparents' education, higher levels of parental education, increased job complexity and occupational autonomy. In addition, these nuclear family parents held greater expectations for their children's future educational attainment as well.

With regard to parenting techniques, the comparisons between these two family types are less reliable because the current research only includes one parental report from single families (from the parent who lived with the interviewed child), but include

two parental reports on parenting variables from intact families. Nevertheless, by the average of both intact family parents' reports on parenting, a general pattern could be ascertained that single parents exerted more coercive but less communicative parenting techniques than parents in intact families. In addition, single parents used more alcohol in adverse situations and used more (types) illegal drugs in adulthood. However, there is no significant difference in children's reports between children in single-parent families and intact families in the levels of communicating parenting techniques that their parents exerted on them. The results provide support as to why the current research needed to analyze the proposed model by family structure.

Further comparisons between boys and girls in intact families versus single-parent families also suggested similar results. That is, both boys and girls raised in intact families reported greater levels of self-esteem and self-efficacy (and adulthood self-efficacy) than their counterparts. In both groups of boys and girls, intact family parents also reported greater levels of adolescent self-esteem and self-efficacy than the single parents. Moreover, intact family parents and their parents received higher level of education than their counterparts in the sample of single-parent family. Correspondingly, intact family parents of boys and girls reported respectively higher average income per capita and were more likely employed in complex occupations than boys and girls' single parents respectively. Similar results were also held on parental expectation of children's educational attainment and on parental use of alcohol and drug abuse.

This research further compared gender differences in each family type. For example, the results of T-test suggested that boys and their parents in intact families reported greater levels of coercive parenting than girls and their parents, and boys reported lower level of self-efficacy than girls. However, there were no other significant differences between boys and girls raised in intact families. The similar results were also present in the sample of single-parent families.

The zero-order correlation matrixes (Table 3 and Table 4) generally provide a picture to support the literature: single-parent families and intact families provide differential levels of material and social resources for children and these resources seems to covariate with the developments of their psychological well-being. According to Table 3 and Table 4, correlation coefficients between the major study variables in both intact family and single-parent families are in expected directions. Observed indicators within each latent construct exerted moderate to strong correlations, which indicate their potential representation of the latent construct. The differences between single-parent families and intact families in the zero-order correlations of the study variables exist in the magnitudes of these correlations in the two groups. Generally speaking, these zero-order correlations in intact family samples are slightly stronger than those in the single-parent family group.

However, there were a few exceptions and some of them are worth mentioning in this session. Zero-order correlations between child's self-efficacy indicators and parental self-efficacy in adulthood were positively and significantly correlated in intact family group, while such correlations were not significant statistically in single-parent

Table 3. Correlation Matrix for Intact-Family Samples

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. G1 Self-Esteem	1.00																											
2. G2 Self-Esteem	.09**	1.00																										
3. Child's Age	-.04	-.13**	1.00																									
4. Boy	-.03	-.03	.00	1.00																								
5. Father	.06**	.05*	-.05*	.03	1.00																							
6. African American	.09**	-.02	.12**	.00	.03	1.00																						
7. Latino American	-.11**	-.07**	.08**	-.01	-.08**	-.18**	1.00																					
8. Grandmom's Education	.05*	.05*	-.16**	.01	.02	.01	-.51**	1.00																				
9. Grandpa's Education	.05*	.09**	-.19**	.00	.00	-.18**	-.46**	.63**	1.00																			
10. G1 Education	.14**	.13**	-.32**	.01	.00	-.03	-.28**	.39**	.44**	1.00																		
11. Per Capita Income	.12**	.11**	-.25**	-.04	.06*	-.12**	-.19**	.23**	.26**	.35**	1.00																	
12. G1 LC	.38**	.07**	-.09**	-.01	-.01	-.13**	-.14**	.18**	.22**	.22**	.18**	1.00																
13. G1 PCOE	.41**	.11**	-.09**	-.02	-.01	-.06**	-.08**	.11**	.11**	.17**	.13**	.45**	1.00															
14. G2 LC	.06*	.41**	-.05*	-.06*	.03	-.14**	-.05*	.08**	.13**	.14**	.16**	.11**	.09**	1.00														
15. G2 PCOE	.11**	.40**	-.16**	-.11**	.05*	-.09**	-.08**	.10**	.11**	.17**	.17**	.16**	.16**	.41**	1.00													
16. G1 Adult Self-Efficacy	.13**	.08**	-.09**	-.03	.09**	-.01	.05*	.01	.05*	.14**	.14**	.09**	.08**	.10**	.15**	1.00												
N	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840												
17. Job Complexity	.09**	.12**	-.17**	-.02	.15**	-.14**	-.17**	.21**	.27**	.43**	.26**	.17**	.11**	.14**	.14**	.14**	1.00											
N	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1517	1496	1517											
18. G1 Alcohol Use	-.04	.00	.00	.02	.08**	.05*	.02	.00	-.04	-.07**	-.01	-.04	-.02	.00	-.05*	.01	-.02	1.00										
N	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1840	1517	1869										
19. G1 Drug Use	-.08**	-.02	.05*	.02	.03	.06**	.00	-.03	-.06*	-.11**	-.06**	-.08**	-.07**	-.05*	-.12**	-.07**	-.03	.35**	1.00									
N	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1869	1840	1517	1869	1869									
20. COEP by Mother	-.06**	-.06*	-.04	.03	-.11**	.06*	-.04	.00	-.01	-.03	-.13**	-.08**	-.05*	-.11**	-.12**	-.06**	-.02	.11**	.07**	1.00								
N	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1861	1832	1509	1861	1861	1861								
21. COEP by Father	-.05*	-.06*	-.02	.09**	.10**	.02	-.08**	.02	-.01	-.02	-.11**	-.02	-.04	-.09**	-.09**	-.07**	.03	.15**	.06**	.62**	1.00							
N	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1831	1802	1483	1831	1831	1828	1831							
22. Mom's COEP by Child	-.03	-.15**	-.05*	.11**	.01	.11**	-.03	-.03	-.06*	.00	-.04	-.05*	-.02	-.13**	-.12**	-.03	.01	.02	.00	.20**	.15**	1.00						
N	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1868	1839	1516	1868	1868	1860	1830	1868						

Table 3. Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
23. Dad's COEP by Child	-.06*	-.19**	-.02	.16**	.01	.02	-.04	.01	.00	.03	-.05*	-.03	-.04	-.11**	-.12**	-.02	-.03	-.02	-.03	.14**	.23**	.65**	1.00					
N	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1836	1513	1865	1865	1857	1827	1865	1865					
24. COMP by Mother	.04	.11**	-.14**	-.07**	.05*	-.12**	-.01	.05*	.12**	.14**	.12**	.05*	.06**	.11**	.15**	.13**	.13**	-.14**	-.15**	-.18**	-.09**	-.03	.01	1.00				
N	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1865	1836	1513	1865	1865	1859	1827	1864	1861	1865				
25. COMP by Father	.09**	.18**	-.21**	-.02	.22**	-.14**	-.04	.08**	.17**	.19**	.17**	.08**	.15**	.14**	.24**	.25**	.23**	-.03	-.07**	-.11**	-.07**	-.04	-.02	.48**	1.00			
N	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1843	1814	1495	1843	1843	1835	1831	1842	1839	1839	1843			
26. Mom's COMP by Child	.03	.17**	-.10**	-.17**	-.01	-.05*	-.03	.03	.09**	.10**	.12**	.06*	.05	.23**	.21**	.08**	.11**	-.02	-.01	-.06*	-.05*	-.10**	-.04	.16**	.15**	1.00		
N	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1807	1780	1466	1807	1807	1799	1772	1806	1803	1803	1781	1807		
27. Dad's COMP by Child	.03	.16**	-.19**	.00	.06**	-.07**	-.03	.04	.10**	.15**	.13**	.06**	.04	.22**	.21**	.10**	.13**	-.02	.00	-.04	-.05*	-.08**	-.08**	.11**	.28**	.66**	1.00	
N	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1803	1776	1464	1803	1803	1795	1768	1802	1799	1799	1777	1801	1803	
28. Dad's Expectation	0.11**	0.12**	-.19**	-.02	-.01	-.03	-.14**	.18**	.20**	.42**	.27**	.18**	.14**	.19**	.22**	.08**	.26**	-.05*	-.12**	-.07**	-.04	-.01	.01	.19**	.24**	.12**	.13**	1.00
N	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1811	1492	1840	1840	1832	1828	1839	1836	1836	1840	1778	1774	1840
29. Mom's Expectation	0.15**	0.11**	-.20**	-.01	.00	-.06**	-.11**	.17**	.18**	.44**	.30**	.20**	.17**	.18**	.22**	.13**	.23**	-.05*	-.10**	-.09**	-.05*	.00	.00	.21**	.25**	.10**	.14**	.86**
N	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1834	1511	1863	1863	1857	1825	1862	1859	1861	1837	1801	1797	1837

Note: 1. Pairwise correlations. * $p < .05$ and ** $p < .01$.
2. If N has no missing cases for an entire row, this row is omitted for better reading.
3. G1: the first generation. G2: the second generation. LC: locus of control. PCOE: perceived control over environment. COEP: coercive parenting. COMP: communicative parenting.

Table 4. Correlation Matrix for Single-Family Samples

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. G1 Self-Esteem		1.00																							
2. G2 Self-Esteem		.13**	1.00																						
3. Child's Age		-.05	-.93**	1.00																					
4. Boy		.05	.00	-.08**	1.00																				
5. Father		.05	-0.03	-.07*	.02	1.00																			
6. African		.02	.05	.15**	-.10**	-.05	1.00																		
7. Latino		-.10**	-.03	0.04	.04	0.02	-.28**	1.00																	
8. Grandmom's Education		.07*	.02	-.13**	-.03	-.01	.01	-.39**	1.00																
9. Grandpa's Education		.05	.05	-.14**	.01	-.04	-.15**	-.27**	.61**	1.00															
10. Parental Education		.11**	.09**	-.20**	.01	-.07*	-.01	-.14**	.30**	.33**	1.00														
	N	1114	1114	1114	1114	1114	1114	1114	1114	1114	1114														
11. Per Capita Income		.07*	.05	-.08**	.03	.17**	-.19**	.02	.17**	.19**	.25**	1.00													
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115													
12. G1 LC		.32**	.08**	-.11**	.07*	-.03	-.21**	-.06	.18**	.24**	.19**	.22**	1.00												
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115												
13. G1 PCOE		.45**	.07*	-.02	.00	.01	-.01	.00	.02	.08**	.13**	.08**	.41**	1.00											
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115											
14. G2 LC		.09**	.40**	-.01	-.09**	.05	-.11**	-.01	.02	.06*	.09**	.10**	.10**	.06	1.00										
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115	1115										
15. G2 PCOE		.12**	.38**	-.14**	-.07*	.03	-.09**	-.03	.10**	.13**	.12**	.11**	.12**	.12**	.39**	1.00									
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115	1115	1115									
16. G1 Adult SE		.14**	.07*	-.04	.02	.01	-.02	.01	.05	.04	.08**	.13**	.14**	.12**	.05	.05	1.00								
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115	1115	1115	1115								

Table 4. Continued.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
17. Job Complexity		.08*	.03	-.10**	0.04	.18**	-.21**	.01	.15**	.25**	.32**	.25**	.10**	.08*	.05	.03	.06	1.00							
	N	942	942	942	942	942	942	942	942	942	941	942	942	942	942	942	942	942							
18. G1 Alcohol Use		-.08**	-.03	-.02	.01	.07*	-.14**	.04	.00	-.01	-.12**	-.02	-.03	-.10**	-.01	-.02	-.15**	.01	1.00						
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115	1115	1115	1115	942	1115						
19. G1 Drug Use		-.03	-.08**	-.06	.02	.02	-.12**	-.02	.04	.06*	-.09**	-.04	-.05	-.02	-.6*	.00	-.24**	.01	.31**	1.00					
	N	1115	1115	1115	1115	1115	1115	1115	1115	1115	1114	1115	1115	1115	1115	1115	1115	942	1115	1115					
20. COEP by Parent		.02	-.08**	-.08*	.04	-.04	.07*	-.06*	-.01	-.03	-.02	-.18**	-.05	-.06*	-.09**	-.10**	-.07*	.01	-.02	-.02	1.00				
	N	1114	1114	1114	1114	1114	1114	1114	1114	1114	1113	1114	1114	1114	1114	1114	1114	941	1114	1114	1114				
21. COEP by Child		.00	-.19**	-.08*	.12**	-.07*	.02	-.01	.01	.02	-.03	-.03	.05	-.03	-.07*	-.16**	-.06	.00	-.02	.04	.22**	1.00			
	N	971	971	971	971	971	971	971	971	971	970	971	971	971	971	971	971	814	971	971	970	971			
22. COMP by Parent		.08*	.08**	-.14**	-.01	-.22**	-.09**	-.06	.10**	.13**	.11**	-.05	.15**	.08**	.03	.11**	.14**	-.01	-.11**	-.04	.03	-.02	1.00		
	N	1112	1112	1112	1112	1112	1112	1112	1112	1112	1111	1112	1112	1112	1112	1112	1112	939	1112	1112	1111	968	1112		
23. COMP by Child		.06	.24**	-.02	-.15**	-.24**	-.01	-.06	.07*	.09**	.05	-.06	.06	.09**	.18**	.23**	.04	-.02	-.04	.02	-.05	-.13**	.30**	1.00	
	N	909	909	909	909	909	909	909	909	909	908	909	909	909	909	909	909	765	909	909	908	903	906	909	
24. Dad's Expectation		.16**	.12**	-.18**	-.05	-.05	-.11**	-.06	.09*	.11**	.36**	.15**	.18**	.10**	.13**	.20**	.17**	.16**	-.06	-.07	-.03	-.08	.28**	.08	1.00
	N	678	678	678	678	678	678	678	678	678	677	678	678	678	678	678	678	577	678	678	677	550	676	516	678
25. Mom's Expectation		.17**	.09**	-.17**	-.01	-.02	-.09**	-.06	.12**	.15**	.37**	.18**	.16**	.10**	.11**	.19**	.15**	.13**	-.15**	-.10**	.01	-.01	.28**	.07*	.84**
	N	1057	1057	1057	1057	1057	1057	1057	1057	1057	1056	1057	1057	1057	1057	1057	1057	893	1057	1057	1056	936	1054	877	628

Note: 1. Pairwise correlations. * $p < .05$ and ** $p < .01$.
2. If N has no missing cases for an entire row, this row is omitted for better reading.
3. G1: the first generation. G2: the second generation. LC: locus of control. PCOE: perceived control over environment. COEP: coercive parenting. COMP: communicative parenting.

family group. Observed variables of both parental self-efficacy in adolescence and child's self-efficacy were negatively associated with observed indicators of coercive parenting (both parents' reports) among the intact family sample; while these associations (only the single-parent's report) were generally weaker in single-parent family sample.

Measurement Models

The factor loadings of self-efficacy in baseline model, control model and subgroup models were show in Table 5 (intact-family sample) and in Table 6 (single-family sample). All the standardized factor loadings of self-efficacy (locus of control and perceived control over one's environment) reached statistically significant levels ($p < .001$) and the magnitudes of the standardized coefficients ranged from .52 to .77, while majority of them approximated .65. Interestingly, the standardized factor loadings for grandparents' educational attainment were even higher (mostly between .70 and .80). Noticeably however, Latino-American single-family model had inconsistent factor loadings on latent construct of grandparents' educational attainment. This result mainly resulted from the nature of the small sample in this group, leading to extremely enlarged standard errors in coefficients. The later report on intergenerational parallelism of self-efficacy will further discuss this group with regard to its acceptability in terms of the statistical and theoretical considerations.

Intergenerational Parallelism of Self-Efficacy

As aforementioned in Chapter IV, the current data consist of a sample with 2,279 parent-child pairs for the intact-family group and 1,616 pairs for the single-family group.

Table 5. Model Factor Loadings for Intact-Family Samples

	Baseline	W/ Control Variables	W/ per Capita Income	Boys	Girls	African American	Non-Latino Whites	Latino American
	N = 1,967	N = 1,967	N = 1,869	N = 964	N = 905	N = 298	N = 1,300	N = 271
G1 LC	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	(.68)	(.69)	(.69)	(.70)	(.69)	(.77)	(.65)	(.66)
G1 PCOE	1.02	1.23	.98	.91	1.06	.76	1.19	.88
	(.67)	(.66)	(.66)	(.62)	(.69)	(.62)	(.69)	(.62)
G2 LC	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	(.52)	(.64)	(.64)	(.70)	(.58)	(.69)	(.59)	(.69)
G2 PCOE	1.27	.84	.84	.73	.98	.86	.84	.84
	(.79)	(.64)	(.64)	(.59)	(.70)	(.69)	(.62)	(.63)
Grandmother	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Education		(.81)	(.80)	(.77)	(.78)	(.52)	(.75)	(.57)
Grandfather	--	1.23	1.24	1.35	1.31	2.36	1.24	1.60
Education		(.77)	(.78)	(.83)	(.79)	(.85)	(.71)	(.89)

Note: LC stands for locus of control and PCOE stands for perceived control over one's environment. LC and PCOE are the observed indicators of self-efficacy. Standardized coefficients are in parentheses.

Table 6. Model Factor Loadings for Single-Family Samples

	Baseline	W/ Control Variables	W/ per Capita Income	Boys	Girls	African American	Non-Latino Whites	Latino American
	N = 1,481	N = 1,481	N = 1,115	N = 539	N = 576	N = 440	N = 559	N = 116
G1 LC	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	(.66)	(.60)	(.63)	(.67)	(.59)	(.66)	(.59)	(.54)
G1 PCOE	.96	1.14	1.06	.94	1.20	.90	1.59	1.27
	(.62)	(.67)	(.65)	(.61)	(.69)	(.64)	(.77)	(.70)
G2 LC	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	(.56)	(.66)	(.64)	(.75)	(.53)	(.55)	(.62)	(.69)
G2 PCOE	1.20	.88	.91	.69	1.22	1.01	.92	.89
	(.72)	(.62)	(.62)	(.57)	(.65)	(.57)	(.61)	(.73)
Grandmother	--	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Education		(.84)	(.85)	(.82)	(.83)	(.77)	(.54)	(.58)
Grandfather	--	1.14	1.12	1.26	1.12	1.15	2.96	8.15
Education		(.73)	(.72)	(.72)	(.72)	(.73)	(1.0)	(4.70)

Note: LC stands for locus of control and PCOE stands for perceived control over one's environment. LC and PCOE are the observed indicators of self-efficacy. Standardized coefficients are in parentheses.

However, after taking into account the availability of each control variable and self-efficacy and self-esteem measures in two generations, only 1,967 pairs of parent-child data were available for analysis for the intact-family group and only 1,481 pairs of parent-child sample available for the single-family group. Furthermore, upon consideration of family economic conditions, the variable Average Income Per Capita was added to the analyses to determine its potential impact on both generations' levels of self-efficacy. This SES measure along with grandparents' educational attainment may decompose the effect of intergenerational parallelism of self-efficacy if such effect is spurious. The consideration of this economic variable dropped intact-family sample to 1,869 cases and single-family sample to 1,115 cases. The great number of loss in sample size of the two groups brought concerns whether certain attritions exist for samples remaining in the analytical data comparing to the excluded samples. Further closer comparisons between each sample sizes were conducted. With respect to intact-family group, sample cases were abridged from 2,279 to 1,967 and then to 1,869; while single-family sample size was reduced from 1,616 to 1,481 and then to 1,115. Examinations of the mean levels of study variables in each of the three samples in each group revealed that the mean levels of study variables of both intact-family and single-family groups were not significantly different in the processes of reducing sample size. In other words, the deletion of missing variables was on a random basis (although there is no sure answer for this regard). That is, the remaining sample is closer to Missing Completely at Random (MCAR). Under such conditions, listwise deletion of the study variables for further analyses is advantageous for unbiased estimates (see discussion of

Allison 2002). Nevertheless, readers are cautioned by the nature of high percentage of samples deleted by the processes of adding more independent and control variables into analytical models, especially in single-family group.

Intact families and single families were analyzed separately and the results of intergenerational parallelism of self-efficacy were reported in the following paragraphs. In each group, a baseline structural equation model examining only the correlation of both generations' self-efficacy was reported with a sample size of 1,967 for intact family, and of 1,481 for single-family. The next model then included control variables except the variable of average income per capita. Finally, variable of average income per capita was added and reduced the sample sizes for both groups to 1,869 and 1,115, respectively.

Table 7 and Table 8 present the results of the analyses. The results of both intact-family and single-family groups suggested that the intergenerational parallelism of self-efficacy was quite consistent with and without the inclusion of control variables, including child's age, parent and child's sex, race/ethnicity, grandparents' education, parent and child's self-esteem, and average income per capita. In intact-family data, the effect of parental self-efficacy (in adolescence) on child's self-efficacy remained .21 (unstandardized, $p < .001$). Invariance tests suggested no significant differences between the structural coefficients in the different models (Table 7, columns from 2 to 4). With regard to the effects of control variables on child's self-efficacy, the results suggested the following: 1) a child's age held a negative association with child's self-efficacy (Table 7, columns 3 and 4); 2) being a boy was negatively related to the levels

Table 7. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Intact-Family Models

	All Intact Families N = 1,967	All Intact Families N = 1,967	Income Controlled N = 1,869
Child's Age	--	-.03**	-.02*
	--	(-.09**)	(-.07)
Child's Sex	--	-.12***	-.12***
(Boy = 1)	--	(-.13***)	(-.13***)
Parent's Sex	--	.05^{+}	.06*
(Father = 1)	--	(.05^{+})	(.06*)
African American	--	-.17***	-.15***
	--	(-.13***)	(-.11***)
Latino American	--	-.03	.00
	--	(-.02)	(.00)
Grandparents'	--	.04*	.03^{+}
Education	--	(.12*)	(.09^{+})
Parental Self-Esteem	--	.00	-.01
in Adolescence	--	(-.02)	(-.03)
Parental Self-Efficacy	.21***	.21***	.21***
in Adolescence	(.29***)	(.24***)	(.24***)
Per Capita Income	--	--	.07***
	--	--	(.12)
$\chi^2_{(df)}$	$1.22_{(1)}$	$116.88_{(37)}$	$123.33_{(41)}$
$\chi^2/_{(df)}$	1.22	3.15	3.01
RMSEA	.011	.033	.033
GFI	1.0	.99	.99
AGFI	1.0	.98	.98
NFI	1.0	.97	.97
NNFI	1.0	.96	.96
CFI	1.0	.98	.98
IFI	1.0	.98	.98

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

Table 8. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Single-Family Models

	All Single Families N = 1,481	All Single Families N = 1,481	Income Controlled N = 1,115
Child's Age	--	-.01^{+}	-.02
	--	(-.06^{+})	(-.07)
Child's Sex	--	-.14***	-.15***
(Boy = 1)	--	(-.14***)	(-.15***)
Parent's Sex	--	.03	.05
(Father = 1)	--	(.03)	(.04)
African American	--	-.12**	-.13**
	--	(-.11**)	(-.12**)
Latino American	--	-.03	-.03
	--	(-.02)	(-.02)
Grandparents'	--	.03^{+}	.02
Education	--	(.09^{+})	(.06)
Parental Self-Esteem	--	.01	.01
in Adolescence	--	(.04)	(.05)
Parental Self-Efficacy	.17**	.16*	.15*
in Adolescence	(.22**)	(.16*)	(.17*)
Per Capita Income	--	--	.03
	--	--	(.05)
$\chi^2_{(df)}$	$.77_{(1)}$	$157.70_{(37)}$	$200.24_{(41)}$
$\chi^2/_{(df)}$	.77	4.26	4.88
RMSEA	.000	.047	.059
GFI	1.0	.98	.98
AGFI	1.0	.96	.94
NFI	1.0	.95	.91
NNFI	1.0	.91	.84
CFI	1.0	.96	.93
IFI	1.0	.96	.93

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

of self-efficacy (Table 7, columns 3 and 4); 3) children reported higher levels of self-efficacy when fathers (father-child dyads) were included in the samples (Table 7, columns 3 and 4); 4) being African Americans was associated with lower level of child's self-efficacy (Table 7, columns 3 and 4); 5) grandparents' education positively influenced their grandchild's self-efficacy (Table 7, column 3 and 4); 6) a child's family economic conditions also related to higher levels of self-efficacy (.07 at $p < .001$, Table 7); 7) but, parental self-esteem in adolescence and being Latino Americans were not correlated to child's self-efficacy. Models of intact families shown in Table 7 exerted high data-model goodness of fit indices, which suggests, that the data supported the proposed models.

Similar analyses for single families were shown in Table 8. The intergenerational parallelism of self-efficacy was observed in the baseline model and controlled models (unstandardized coefficients from .17 at $p < .01$, .16 at $p < .05$, and .15 at $p < .05$ in Table 8, column 2,3, and 4 respectively). Compared to the intact-family sample, the intergenerational parallelism of self-efficacy in single-family sample seemed to be weaker in magnitude but not significantly different in the invariance test ($\Delta\chi^2 = .01$, $p < .900$). Similar to intact families, a child's sex and being African American was associated with lower level of child's self-efficacy (Table 8, columns 3 and 4). However, the positive relation between grandparents' education and child's self-efficacy seemed to be weaker to non-significant (.02, Table 8, column 4). A similar result was found in the correlation between fathers included in the sample and child's self-efficacy (.05, Table 8, column 4), the correlation between family economic condition (average

income per capita) and child's self-efficacy (.03, Table 8, column 4), and the correlation between child's age and child's self-efficacy (-.02, Table 8, column 4). The data-model fit indices were also good indicating the proposed models were supported by the data.

Differences among Family Structure, Gender, and Race/Ethnicity

In Table 9, the sample was divided into four groups and a model examining the intergenerational parallelism of self-efficacy was estimated for each group with the consideration of all control variables. Coefficients shown in column 2, Table 9 were the results analyzing all the second-generation boys who were raised in intact families with the correspondent data of their parents' reports (N = 964). The next column shows the results of the intact-family girls model (N = 905). The next two columns cover respectively boys (N = 539) and girls (N = 576) and their single parent. The major purpose of Table 9 is to show whether there is significant difference between these groups in the effect of intergenerational parallelism of self-efficacy. In other words, one of this study's interests is to understand if such effect was different among these groups. If they were different, would they be different only in magnitudes or also in directions? In all four groups, the results suggested there was a positive correlation between two self-efficacy measures provided by parent and child respectively. However, such a correlation was not statistically significant in the group of single-family sons. By simply noticing the differences of the structural coefficients among these groups of intergenerational effects of self-efficacy, the differences seemed to be small (from .1 to .17), especially the difference between two groups of sons from intact families and single families (unstandardized coefficients r = .25 and r = .08, respectively). However,

Table 9. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Models by Family Structure and Child's Gender

	Intact Family Sons N = 964	Intact Family Daughters N = 905	Single Family Sons N = 539	Single Family Daughters N = 576
Child's Age	.00	-.03*	-.01	-.01
	(.00)	(-.10*)	(-.04)	(-.07)
Parent's Sex	.07^{+}	.04	.05	.05
(Father = 1)	(.07^{+})	(.05)	(.03)	(.05)
African American	-.20**	-.08	-.19*	-.08^{+}
	(-.13**)	(-.07)	(-.15*)	(-.11^{+})
Latino American	-.05	.03	-.07	.03
	(-.03)	(.03)	(-.04)	(.02)
Grandparents'	.00	.05*	-.01	.04^{+}
Education	(-.01)	(.18)	(-.01)	(.15^{+})
Parental Self-Esteem	-.03	.01	.03	.01
in Adolescence	(-.10)	(.06)	(.09)	(.05)
Parental Self-Efficacy	.25**	.15**	.08	.16*
in Adolescence	(.25**)	(.21**)	(.07)	(.22*)
Per Capita Income	.16***	.02	.07^{+}	.02
	(.26***)	(.04)	(.11^{+})	(.06)
$\chi^2_{(df)}$	$122.87_{(31)}$	$79.64_{(31)}$	$85.45_{(31)}$	$129.41_{(31)}$
$\chi^2/_{(df)}$	3.96	2.57	2.76	4.17
RMSEA	.055	.042	.057	.074
GFI	.98	.99	.98	.97
AGFI	.94	.96	.93	.91
NFI	.95	.96	.93	.89
NNFI	.90	.94	.87	.78
CFI	.96	.98	.95	.91
IFI	.96	.98	.95	.92

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

the equality tests of the intergenerational effect of self-efficacy between these four groups revealed that one is not significantly different from each other. In other words, the intergenerational effect of self-efficacy in these four groups could be treated equally for further examinations of their mediating pathways. These Structural Equation Models were well-fitting models in terms of their data-model fit indices that were mostly above .90 except NNFI in the two single-family groups, sons and daughters. The value of NNFI was only .78 in single-family daughter group, which is often seen as unacceptable. However, in consideration of other statistical criteria such as other data-model fit indices (GFI, AGFI, NFI, CFI, and IFI) and χ^2 to degree of freedom ratio (4.17), this model should be acceptable in light of the well-accepted assertion that assessments should be based on multiple criteria (Byrne, Shavelson, and Muthén 1989). In addition, such multiple criteria should include "substantive, theoretical, and conceptual considerations" (Jöreskog 1971:421). Nevertheless, further examinations of data characteristics showed the following results. First, observed variables approximated a multivariate normal distribution (skewness ranged from –1.55 to .68 and kurtosis ranged from -.84 to 1.69). Second, all primary factor loading, error variance, and variance-covariance parameters, and their standard errors, were reasonable and statistically significant (see Jöreskog and Sörbom 1993). Therefore, the acceptance of this model was concluded since these considerations were essential for structural equation models.

Among these four groups, sons in intact families (Table 9, column 2), daughters in intact families (column 3), sons in single families (column 4), and daughters in single

families (column 5), child's level of self-efficacy beliefs all were negatively related to being African Americans. Family's economic condition (per capita income) was positively associated with the level of boys' self-efficacy and they were statistically significant in both groups of intact families and in single families (.16 and .07, respectively). Child's age was only significantly correlated to intact-family daughter's self-efficacy. Grandparents' education level was related to daughters' self-efficacy in both intact families and single families (.05 and .04, respectively). Parental self-esteem in adolescence was not found to have influence on children's self-efficacy in all four groups. Nevertheless, children's levels of self-esteem and self-efficacy were reciprocally and significantly correlated (not shown in Table 9, their unstandardized coefficients ranged from .29 to .61, which higher coefficients were observed in two groups of boys). The highly correlation between self-efficacy and self-esteem was also observed in other studies (Gecas and Seff 1989; Judge et al. 2002; Stanley and Murphy 1997). The data-model fit indices of these four groups suggested the specified model was well fitting the data of these groups. Only one low value of NNFI in single-family daughters was observed. With the consideration of multiple assessments of the other criteria, including the statistical and theoretical considerations, they suggested that the result of the single-family daughters group was acceptable.

Although the first impression of reading Table 9 seemed to suggest differential intergenerational effect of self-efficacy between sons and daughters in both family structures, the invariance tests did not observe gender difference as an inheritance of self-efficacy between parents and sons/daughters ($\Delta\chi^2$ ranged from -.28 to 1.96 with all

significant levels smaller than .20). However, it was noticed that the intergenerational parallelism of self-efficacy was not significant in the group of single-family boys. In addition, the results of Table 8 provided some confusing information about the gender difference between sons and daughter groups in terms of their family structure as in an intact family or a single family. Indeed, the intergenerational effect of self-efficacy was slightly greater among boys than girls in the intact-family group, while the results were opposite in the single-family group. Since the literature had suggested the differential levels of closeness among four types of parent-child gender dyads, in which closeness was generally stronger in same gender dyads than cross gender dyads, it would be expected that the strongest ties be observed among mother-daughter dyads and the weakest among father-daughter dyads (Kaplan and Liu 1999). Therefore, the analysis of gender differences was further explored in terms of the four types of gender dyads.

Each of intact-family and single-family groups was divided into four groups and estimated by the same model specification of the earlier analyses except it included consideration of parental sex. According to Table 10, the intergenerational parallelism of self-efficacy was the strongest in the father-son dyad subgroup (.29, $p < .05$) and the weakest in the father-daughter subgroup (unstandardized coefficient was .06 and non-significant). Subgroups of mother-son and mother-daughter were found to exhibit a similar magnitude of significant correlation, which were in the between those of the other two subgroups (.19 and .20, respectively). The invariance tests, however, suggested that the differences between these four subgroups in the intergenerational effect of self-efficacy were not significant. That is, the expected differential levels of

Table 10. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Intact-Family Models by Parent-Child Gender Pairs

	Father-Son	Mother-Son	Father-Daughter	Mother-Daughter
	N = 404	N = 560	N = 355	N = 550
Child's Age	.03	-.02	.00	-.04*
	(.07)	(-.04)	(.00)	(-.14*)
African American	-.21*	-.21*	-.03	-.11
	(-.15*)	(-.14*)	(-.06)	(-.09)
Latino American	-.18	.04	-.06	.09
	(-.11)	(.02)	(-.05)	(.08)
Grandparents'	-.04	.02	.06	.05*
Education	(-.09)	(.06)	(.20)	(.19*)
Parental Self-Esteem	-.04	-.02	.01	.02
in Adolescence	(-.14)	(-.06)	(.04)	(.08)
Parental Self-Efficacy	.29*	.19^{+}	.06	.20*
in Adolescence	(.29*)	(.20^{+})	(.08)	(.26*)
Per Capita Income	.15***	.17***	.06^{+}	-.01
	(.25***)	(.26***)	(.14^{+})	(-.02)
$\chi^2_{(df)}$	$38.71_{(24)}$	$101.52_{(24)}$	$51.70_{(24)}$	$49.20_{(24)}$
$\chi^2/_{(df)}$	1.61	4.23	2.15	2.05
RMSEA	.039	.076	.057	.044
GFI	.98	.97	.98	.99
AGFI	.95	.91	.92	.95
NFI	.96	.93	.93	.96
NNFI	.95	.85	.89	.95
CFI	.98	.95	.96	.98
IFI	.98	.95	.96	.98

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

self-efficacy parallelism among the four gender-dyad subgroups were not observed in terms of the statistical examinations of invariance tests, even though the results showed that such intergenerational parallelism of self-efficacy was non-significant in the father-daughter subgroup, but significant in the other three dyads. The effects of other demographic variables and control variables on child's self-efficacy were parallel to the results reported in Table 7. Being African American was negatively related to boys' self-efficacy (both father-son and mother-son subgroups), but not to girls' self-efficacy. Family economic condition (per capita income) was positively associated with boys' self-efficacy (.15 for father-son dyads and .17 for mother-son dyads), but only slightly associated with girls' self-efficacy in father-daughter dyads and no significant association was observed in mother-daughter dyads. The data-model fit indices suggested great fitness between the four datasets for their specified models.

The same procedure in the analysis in the single-family data (see Table 11) brings rather unreliable results for father-son and father-daughter subgroups because of the small sample size (N = 124 and 123, respectively). The smaller sample size due to the deletion of missing cases often leads to larger standard errors in the structural effects of study variables because less information is utilized. Furthermore, if the data is not completely at random (MCAR) but only missing at random (MAR), the listwise deletion results of Structural Equation Model may yield biased estimates (see discussion in Allison 2002). Therefore, the cautious interpretation of the results of the four gender dyads in the single-family group is advised.

Table 11. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Single-Family Models by Parent-Child Gender Pairs

	Father-Son	Mother-Son	Father-Daughter	Mother-Daughter
	N = 124	N = 415	N = 123	N = 453
Child's Age	-.07*	.00	-.03	-.01
	(-.22*)	(.01)	(-.08)	(-.07)
African American	.00	-.25**	-.32*	-.04
	(.00)	(-.19**)	(-.27*)	(-.07)
Latino American	-.25	.01	-.30	.10
	(-.16)	(.01)	(-.16)	(.09)
Grandparents'	.02	-.01	.03	.04
Education	(.10)	(-.03)	(.09)	(.16)
Parental Self-Esteem	.06	.01	-.02	.01
in Adolescence	(.20)	(.02)	(-.05)	(.07)
Parental Self-Efficacy	-.06	.19	-.01	.17*
in Adolescence	(-.06)	(.17)	(-.01)	(.29*)
Per Capita Income	.08	.05	.05	.02
	(.14)	(.07)	(.08)	(.06)
$\chi^2_{(df)}$	$40.19_{(24)}$	$69.53_{(24)}$	$52.72_{(25)}$	$97.53_{(24)}$
$\chi^2/_{(df)}$	1.67	2.90	2.20	4.06
RMSEA	.074	.068	.095	.082
GFI	.95	.97	.94	.97
AGFI	.83	.91	.81	.89
NFI	.86	.93	.85	.89
NNFI	.79	.86	.73	.76
CFI	.92	.95	.90	.91
IFI	.94	.95	.91	.92

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

Similarly, the differences of intergenerational effect of self-efficacy between the gender dyads were observed in magnitude but were not significantly different in terms of the invariance tests between these four subgroups. The strongest intergenerational effect of self-efficacy, and the only significant one, was found in the mother-daughter subgroup (.17 with a standard error of .09, $p < .05$). Mother-son dyads also yielded a similar level of effect (.19 with a standard error of .17) but were not significant because of the almost doubled size of standard error corresponding to the effect coefficient. The intergenerational effect of self-efficacy in the other two dyads, father-son and father-daughter subgroups, also yielded a similar high level of standard errors (.21 and .16, respectively). The consequence of high standard errors also appeared in the causal effects of racial membership on child's self-efficacy. For example, being Latino American was associated with lower level of child's self-efficacy in father-son and father-daughter dyads (-.25 and -.30, respectively), but both coefficients were not significant due to the high level of standard errors corresponding to the effect. Therefore, it was deemed more appropriate to conservatively assert that no significant difference existed among these four dyads with regard to the intergenerational parallelism of self-efficacy. Finally, the data-model indices of father-son and father-daughter models suggested these two models were less acceptable due to the low levels of AGFI, NFI, and NNFI and high levels of RMSEA value (see Table 11).

Race/ethnicity was another moderating variable in the interests of the current research. Both intact-family and single-family groups were divided into three subgroups: African Americans, Non-Latino Whites, and Latinos, to examine the

potential differences in magnitudes of intergenerational parallelism of self-efficacy. The aforementioned analyses have suggested that being African American was more likely to have lower levels of self-efficacy among adolescents. However, those analyses cannot provide information if the intergenerational effect of self-efficacy is equivalent among different racial groups. Table 12 and Table 13 present the results of intergenerational parallelism of self-efficacy of different racial groups, divided by intact-family group and single-family group, respectively.

The strongest intergenerational parallelism in the intact-family group was observed in the model of Non-Latino Whites (.30, $p < .001$, in Column 3, Table 12). The positive effect was also observed in the model of African Americans (.07) but it was not statistically significant. Surprisingly, a negative association of the effect was observed in the model of Latino Americans (-.09), although it was not statistically significant either. Further analyses of invariance tests of these effects between groups revealed that the intergenerational effect of self-efficacy was significantly different between Non-Latino Whites and Latino Americans, while the difference between African Americans and Non-Latino Whites, between African Americans and Latino Americans were not significantly different. The statistical assessments of these three models suggested that they demonstrated a good fit between data and model specifications. All of these three models yielded high values in the data-model fit indices (all above .90) with low RMSEA (from .008 to .038), and low χ^2 to degree of freedom ratio (from 1.02 to 3.67). In addition, although the sample size of African Americans and Latino Americans were quite small (N = 298 and 271, respectively), their

Table 12. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Intact-Family Models by Race/Ethnicities

	African Americans	Non-Latino Whites	Latino Americans
	N = 298	N = 1,300	N = 271
Child's Age	-.02	-.02*	.01
	(-.05)	(-.08*)	(.03)
Child's Sex	-.18*	-.11***	-.14^{+}
(Boy = 1)	(-.15*)	(-.13***)	(-.13^{+})
Parent's Sex	.10	.06*	-.01
(Father = 1)	(.08)	(.08*)	(-.01)
Grandparents'	-.06	.03	.01
Education	(-.08)	(.08)	(.02)
Parental Self-Esteem	.08^{+}	-.22	.01
in Adolescence	(.19^{+})	(-.09)	(.03)
Parental Self-Efficacy	.07	.30***	-.09
in Adolescence	(.07)	(.36***)	(-.11)
Per Capita Income	.22***	.04*	.18**
	(.32***)	(.08*)	(.26**)
$\chi^2_{(df)}$	$31.60_{(31)}$	$88.04_{(31)}$	$43.04_{(31)}$
$\chi^2/_{(df)}$	1.02	2.84	1.39
RMSEA	.008	.038	.038
GFI	.98	.99	.98
AGFI	.96	.97	.94
NFI	.94	.96	.91
NNFI	1.0	.94	.94
CFI	1.0	.97	.97
IFI	1.0	.97	.97

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

Table 13. The Structural Effects of Control Variables and Parental Self-Efficacy in Adolescence on Child's Self-Efficacy – Single-Family Models by Race/Ethnicities

	African Americans	Non-Latino Whites	Latino Americans
	N = 440	N = 559	N = 116
Child's Age	-.01	.00	-.10***
	(-.04)	(-.02)	(-.36***)
Child's Sex	-.17**	-.15**	-.15
(Boy = 1)	(-.17**)	(-.16**)	(-.12)
Parent's Sex	.10	.10^{+}	-.30*
(Father = 1)	(.08)	(.09^{+})	(-.22*)
Grandparents'	-.01	.10	.08
Education	(-.03)	(.17)	(.07)
Parental Self-Esteem	.08**	-.02	-.02
in Adolescence	(.24**)	(-.08)	(-.06)
Parental Self-Efficacy	.06	.31***	-.47^{+}
in Adolescence	(.07)	(.31***)	(-.35^{+})
Per Capita Income	.04	.03	.25**
	(.09)	(.05)	(.37**)
$\chi^2_{(df)}$	$59.14_{(31)}$	$68.98_{(31)}$	$34.81_{(31)}$
	1.91	2.23	1.12
RMSEA	.045	.047	.033
GFI	.98	.98	.95
AGFI	.94	.95	.88
NFI	.92	.93	.84
NNFI	.91	.91	.95
CFI	.96	.96	.97
IFI	.96	.96	.98

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
Standardized coefficients are in parentheses.

observed variables approximated a multivariate normal distribution (skewness ranged from –1.50 to 1.44 and kurtosis ranged from -.71 to 2.0 for African Americans; and skewness ranged from –1.41 to .48 and Kurtosis ranged from –1.18 to 1.17 for Latino Americans). Moreover, all primary factor loading, error variance, and variance-covariance parameters, and their standard errors, were reasonable and statistically significant in these racial groups (see Jöreskog and Sörbom 1993). All of above information suggested the three proposed models were well fitted with the three datasets.

Boys in the three racial groups reported slightly lower levels of self-efficacy. Child's age was negatively associated with child's self-efficacy among Non-Latino Whites (-.02 at $p < .05$), while parental self-esteem in adolescence was positively associated with child's self-efficacy among African Americans (.08 at $p < .10$, two-tailed test). Finally, family economic condition (per capita income) was associated with greater levels of child's self-efficacy in all three groups, of which the strongest effect was observed in the model of African Americans (.22 at $p < .001$).

The results of racial differences among single families were parallel to those among intact families except for the magnitudes of some effects shown in Table 12 and Table 13. Similar to intact-family samples, the observed significant causal effect of intergenerational parallelism of self-efficacy was only found among Non-Latino Whites; even the size of the correlation coefficient was very close (.31 at $p < .001$, column 3, Table 13). Moreover, such effect was found positive but not significant statistically among African Americans (.09, column 2), similar to the finding in the intact-family group. This effect for Latino Americans was negative, likewise similar to the finding for

the intact-family group; however, unlike the finding in the intact-family group, this effect was found statistically significant (-.47 at $p < .10$, column 4). The invariance tests of the intergenerational parallelism of self-efficacy between racial groups showed that the only significant difference of this effect was between Non-Latino Whites and Latino Americans - just as was described in the findings for intact-family group.

The effects of demographic variables and parental early self-esteem and family economic condition on child's self-efficacy among racial groups of single-family sample were generally similar to those found in intact-family sample. Single-family boys were less likely to have high levels of self-efficacy belief, as compared to single-family girls in all three racial groups. However, this effect was not significant in Latino American group although the magnitude of this effect (.15, nonsignificant) was about the same as those in the other two racial groups (.17 and .15 at $p < .01$ for African Americans and Non-Latino Whites, respectively). Parental self-esteem in adolescence was found positively and significantly related to child's self-efficacy only in the model of African Americans, while this effect, albeit in the same direction, was not significant in the other two groups. Unlike the findings in intact-family group, the effect of family economic condition on child's self-efficacy was not found significant in the models of African Americans and Non-Latino Whites, but only in the model of Latino Americans (.25 at $p < .01$). Lastly, the influence of child's age was negatively associated with child's self-efficacy, which echoed the results found in intact-family group. However, unlike the results of intact-family group, this effect was only found significant among Latino

Americans (-.10 at $p < .001$), while the significant correlation was found among Non-Latino Whites in intact-family group.

The data-model fit indices for these three racial groups showed that the data seemed to support the proposed models well. Most indices were above .90 except NFI and NNFI in the model of Latino Americans. The low values in RMSEA, ranging from .033 to .047, also indicated substantial data-model fitness. The χ^2 to degree of freedom ratio was ranged from 1.12 to 2.23, which suggested the same conclusions. However, there is one detail that needs to be mentioned. The small size of Latino American model seemed to have derogative effects on the results of this model. The standard errors of many structural effects shown in group of Latino Americans (column 4, Table 13) were much larger than those in the other two groups (more than twice), African Americans and Non-Latino Americans. This is no surprise, given that small samples often lead to larger standard errors because less information is utilized (Allison 2002). The disadvantage of this condition is the potential biased estimates in the structural effects between latent constructs. Readers should be aware of the nature of the small sample size of the model of Latino Americans and cautiously interpret the results.

The next step, the addition of mediating variables into the analyses sought to examine whether the intergenerational parallelism of self-efficacy could be explained by the mediating mechanisms proposed in this study. The analyses of subgroups (by gender of parents and children) with regard to the intergenerational parallelism of self-efficacy seemed to suggest no substantial difference between the magnitudes of the effect in terms of statistical tests even though such differences in coefficients were noticeable. For

instance, race/ethnicity moderated the intergenerational effect of self-efficacy. This effect was found significantly different between Latino Americans and Non-Latino Whites in both intact-family and single-family groups. However, the small size of the two Latino American subgroups (intact- and single-family) may discount the validity of the results of these two subgroups. Therefore, first, the whole sample in each intact-family group and single-family group was analyzed with independent mediating variables. Then a full model was estimated by including all the significant mediating variables for both intact- and single-family groups.

Intergenerational Transmission of Self-Efficacy

The great loss of missing cases may lead to systematic differences between the included sample (obtained through listwise deletion) and the attrited sample. Such systematic differences may introduce bias in estimating correlations between variables. To probe the potential biased results, comparisons of covariances among the variables in each mediating variables (listwise deletion) and the pairwise deletion sample of intact-family and single-family groups were conducted (the results are not shown). The covariances for each mediating models (and full model) were quite close to those for pairwise deletion sample in terms of the directions and the magnitudes of the covariances. The absolute values of the differences in the covariances approximated four percent or less in intact-family sample. Similar results were only found between single-mediator model and pairwise deletion model in single-family sample. In single-family group, many of the covariances for full-model (including all mediating variables) subjects were slightly larger than those of pairwise deletion subjects. Some covariances

generated from listwise deletion subjects (with all mediation variables) were larger than ten percent compared to those generated from pairwise deletion samples. The full model with all significant mediating variables for single-family group was conducted. Its results were compared to those of alternative models with fewer mediating variables, which generated similar covariances to that of the pairwise deletion samples.

The discussion of indirect effect of G1 self-concept on G2 self-concepts in the following sections, it covers not only the mediating effects through the five major (categories of) proposed mediating variables, but also includes the mediating effect through family economic condition (per capita income) and mediating effects through one after another (their disturbances were specified to be reciprocally correlated). The mediating effects transmitted by family economic condition range from .004 to .015 (standardized). The mediating effects through both proposed mediating variables and family economic condition however are too small to be meaningful for discussion.

Intact Family Models

Table 14 presents the results of the mediating models of the intact-family sample. All models shown in Table 14 have different sizes of samples because each mediating variable yielded various amount of missing cases. The sample size of intact-family group declined from 1,967 to 1,869 when family economic condition was added into analysis (see Table 7). Sample size was further reduced when mediating variables for exploring the mediating effect of intergenerational transmission of self-efficacy was added. Among the proposed mediating variables, variable of job complexity had highest number of missing cases, losing 352 cases for analysis; while other mediating variables

only lost from none to 112 cases for analyses of mediating models. The full model (N = 1,399), however, totally lost 470 cases, indicating the missing cases for each mediating variable only overlapped in a very small amount. Similarly in the comparisons of covariance matrices of full model and pairwise deletion models, the difference among the covariances were trivial. The results of full model thus should be consistent with those of the pairwise deletion models; that is, the full model should generate reliable results without bias from nonrandom missingness.

In Table 14, model 1 included parenting variables as mediators. Parental self-efficacy in adolescence (G1 self-efficacy stands for generation 1's self-efficacy in adolescence) led to less use of coercive parenting (-.10) but the coefficient was not significant. G1 self-efficacy also led to parents' greater use of communicative parenting techniques (.17 at $p < .05$, standardized coefficient and so as the following reports and significant tests were two-tailed). Moreover, the coercive parenting was significantly associated with lower levels of child's self-efficacy (-.19 at $p < .10$); and communicative parenting was strongly associated with higher levels of child's self-efficacy (.71 at $p < .001$). These two parenting latent constructs were correlated in the specified model to permit accurate estimations of independent mediating effects of each mediating variable. The direct effect of first-generation self-efficacy on child's self-efficacy was greatly reduced to .14 ($p < .10$) from .28 ($p < .001$). The indirect effect mediated by these two parenting variables was about the same size as the direct effect of first-generation self-efficacy on child's self-efficacy (.14 at $p < .01$). The nonsignificant effect of G1 self-efficacy on coercive parenting was not expected but not surprising either, since coercive

Table 14. Unstandardized (Standardized) Structural Coefficients in Intact-Family Models

Independent Variables	Dependent Variables	Model 1 N = 1,757	Model 2 N = 1,840	Model 3 N = 1,517	Model 4 N = 1,837	Model 5 N = 1,869	Full Model N = 1,399
G1 Self-Efficacy (G1SE)	G2 Self-Efficacy (G2SE)	.12^{+} (.14^{+})	.19*** (.23***)	.17** (.20**)	.17*** (.20***)	.20*** (.23***)	.08 (.10)
G1SE	Coercive Parenting (COEP)	-.09 (-.10)	—	—	—	—	-.06 (-.07)
G1SE	Communicative Parenting (COMP)	.09* (.17*)	—	—	—	—	.10* (.17*)
G1SE	Parental Education (PE)	—	.53*** (.15***)	—	—	—	.56*** (.15***)
G1SE	Parental Self-Efficacy (PSE)	—	.12 (.07)	—	—	—	.02 (.02)
G1SE	Job Complexity (JC)	—	—	.16* (.11*)	—	—	.18* (.12*)
G1SE	Educational Expectation on the Child (EE)	—	—	—	.39*** (.23***)	—	.28** (.16**)
G1SE	Parental Substance USE (PSU)	—	—	—	—	-.07^{+} (-.08^{+})	-.07 (-.10)
COEP	G2SE	-.19^{+} (-.19^{+})	—	—	—	—	-.34*** (-.39***)
COMP	G2SE	1.11*** (.71***)	—	—	—	—	.94** (.63**)

Table 14. Continued.

Independent Variables	Dependent Variables	Model 1 N = 1,757	Model 2 N = 1,840	Model 3 N = 1,517	Model 4 N = 1,837	Model 5 N = 1,869	Full Model N = 1,399
PE	G2SE	—	.07*** (.09***)	—	—	—	.01 (.03)
PSE	G2SE	—	.02* (.13*)	—	—	—	-.04 (-.07)
JC	G2SE	—	—	.06** (.10**)	—	—	-.02 (-.03)
EE	G2SE	—	—	—	.11*** (.23***)	—	.08*** (.18***)
PSU	G2SE	—	—	—	—	-.11* (-.11*)	-.22** (-.18**)
G1 Self-Esteem	G2 Self-Esteem	-.02 (-.03)	.02 (.02)	.00 (.00)	.02 (.03)	.02 (.02)	-.03 (-.04)
G1 Self-Esteem	COEP	-.02 (-.09)	—	—	—	—	-.03 (-.09)
G1 Self-Esteem	COMP	.01 (.04)	—	—	—	—	-.01 (-.04)
G1 Self-Esteem	PE	—	.03 (.02)	—	—	—	.00 (.00)
G1 Self-Esteem	PSE	—	.05* (.09*)	—	—	—	.06* (.12*)
G1 Self-Esteem	JC	—	—	.01 (.01)	—	—	.01 (.01)
G1 Self-Esteem	EE	—	—	—	.00 (.00)	—	.02 (.04)
G1 Self-Esteem	PSU	—	—	—	—	-.02 (-.05)	-.02 (-.08)
COEP	G2 Self-Esteem	-.93*** (-.30***)	—	—	—	—	-1.02*** (-.36***)

Table 14. Continued.

Independent Variables	Dependent Variables	Model 1 N = 1,757	Model 2 N = 1,840	Model 3 N = 1,517	Model 4 N = 1,837	Model 5 N = 1,869	Full Model N = 1,399
COMP	G2 Self-Esteem	1.57**	—	—	—	—	1.84**
		(.32**)					(.38**)
PE	G2 Self-Esteem	—	.04^{+}	—	—	—	.04
			(.06^{+})				(.06)
PSE	G2 Self-Esteem	—	.07*	—	—	—	-.08
			(.05*)				(-.05)
JC	G2 Self-Esteem	—	—	.12*	—	—	.01
				(.07*)			(.01)
EE	G2 Self-Esteem	_	—	—	.10*	—	.03
					(.06*)		(.02)
PSU	G2 Self-Esteem	—	—	—	—	.01	-.07
						(.00)	(-.02)
G1 SE	G2 Self-Esteem	.12	.20^{+}	.22^{+}	.22^{+}	.24*	.12
		(.05)	(.08^{+})	(.09^{+})	(.08^{+})	(.09*)	(.05)
G1Self-Esteem	G2 SE	-.03	-.02	-.01	-.01	-.01	-.03
		(-.09)	(-.06)	(-.04)	(-.03)	(-.04)	(-.10)
G1 SE ⟷	G1 Self-Esteem	.53***	.55***	.57***	.54***	.54***	.56***
		(.59***)	(.58***)	(.59***)	(.59***)	(.58***)	(.61***)
G2 SE ⟷	G2 Self-Esteem	.20***	.38***	.40***	.38***	.39***	.20***
		(.30***)	(.57***)	(.57***)	(.56***)	(.57***)	(.31***)
G2 Age	G2SE	.05*	-.01	-.01	-.01	-.02*	.02
		(.15*)	(-.03)	(-.04)	(-.04)	(-.07*)	(.08)
Father	G1SE	-.02	-.02	-.02	-.02	-.02	-.02
		(-.02)	(-.02)	(-.01)	(-.02)	(-.02)	(-.03)
Boy	G2SE	-.02	-.12***	-.11***	-.12***	-.12***	-.02
		(-.02)	(-.12***)	(-.12***)	(-.12***)	(-.12***)	(-.03)
African Americans	G1SE	-.18***	-.19***	-.14**	-.17***	-.18***	-.16**
		(-.12***)	(-.12***)	(-.09**)	(-.11***)	(-.12***)	(-.11**)

Table 14. Continued.

Independent Variables	Dependent Variables	Model 1 N = 1,757	Model 2 N = 1,840	Model 3 N = 1,517	Model 4 N = 1,837	Model 5 N = 1,869	Full Model N = 1,399
African Americans	G2SE	.01 (.00)	-.16*** (-.12***)	-.11** (-.08**)	-.15*** (-.12***)	-.13** (-.10**)	.02 (.01)
Latino Americans	G1SE	-.04 (-.03)	-.03 (-.02)	.02 (.01)	-.04 (-.02)	-.03 (-.02)	-.02 (-.01)
Latino Americans	G2SE	-.20*** (-.15***)	-.05 (-.04)	-.05 (-.04)	-.02 (-.01)	-.02 (-.02)	-.21* (-.16*)
Grandparents' Education	G1SE	.10*** (.27***)	.11*** (.28***)	.11*** (.29***)	.10*** (.28***)	.11*** (.28***)	.11*** (.29***)
Grandparents' Education	G2SE	-.03 (-.11)	.00 (.01)	.01 (.03)	.01 (.03)	.02 (.05)	-.03 (-.10)
G1SE	Average Income Per Capita (AIPC)	.12 (.08)	.15* (.10*)	.15* (.10*)	.16* (.11*)	.16* (.10*)	.10 (.06)
AIPC	G2SE	.03 (.05)	.07*** (.13***)	.08*** (.14***)	.06** (.10**)	.08*** (.15***)	.04 (.08)
	$\chi^2_{(df)}$	$705.57_{(148)}$	$373.92_{(58)}$	$294.01_{(53)}$	$309.12_{(64)}$	$281.27_{(64)}$	$1000.98_{(261)}$
	χ^2/df	4.77	6.45	5.55	4.83	4.39	3.84
	RMSEA	.046	.063	.055	.046	.043	.045
	GFI	.97	.97	.98	.98	.98	.95
	AGFI	.94	.93	.94	.96	.96	.92
	NFI	.92	.91	.92	.96	.94	.91
	NNFI	.90	.83	.87	.93	.91	.89
	CFI	.94	.92	.94	.97	.95	.93
	IFI	.94	.92	.94	.97	.95	.93

Note: G1 indicates parental generation and G2 indicates child generation.
+ $p < .10$; * $p < .05$; ** $p < .01$; and *** $p < .001$ (two-tailed test).

parenting and communicative parenting were significantly associated with each other (-.31 at $p < .001$). The results strongly suggested that communicative parenting was an important mediating variable transmitting parental early self-efficacy to child's self-efficacy.

Furthermore, first-generation's self-esteem was neither correlated to parental use of coercive parenting, nor to the use of communicative parenting. However, parental use of coercive parenting and communicative parenting were significantly associated with child's self-esteem (-.30 at $p < .001$ and .32 at $p < .01$, respectively). In other words, intergenerational self-esteem was not mediated by these two parenting variables. In fact, parental self-esteem in adolescence was not related to child's self-esteem (-.03). The total effect of these two measures was not significant (.01 at $p < .700$), indicating there was no intergenerational parallelism of self-esteem in the intact-family sample. The same results were also present in the following individual mediating models and the full model.

In model 2 of Table 14, the direct effect of G1 self-efficacy on G2 self-efficacy was .23 ($p < .001$) and the indirect effect of these two measures was .04 ($p < .001$). The mediating variables, parental educational attainment and parental self-efficacy in adulthood, only mediated a small percentage of the effect of G1 self-efficacy on G2 self-efficacy even though these two mediating effects were highly significant. These two mediating variables were specified to be reciprocally correlated in the SEM analysis and a significant correlation was observed (.06 at $p < .001$). Like the model 1, neither significant total effect, nor significant direct effect, of G1 self-esteem on G2 self-esteem

was found in this model. However, the results showed a trivial but a significant indirect effect (.01 at $p < .10$) of G1 self-esteem on G2 self-esteem through the mediating variables, of which the major mediating effect was through parental self-efficacy in adulthood. G1 self-esteem was associated with higher levels of parental self-efficacy in adulthood (.09 at $p < .05$), which in turn related to child's greater beliefs of self-efficacy (.05 at $p < .05$).

In model 3, only job complexity was introduced as a mediating variable for the intergenerational transmission of self-efficacy. G1 self-efficacy increased later opportunities for work in complex job categories (.11 at $p < .05$), and parents who in complex job categories were more likely to have children who reported higher self-efficacy (.10 at $p < .01$). The direct effect of G1 self-efficacy on G2 self-efficacy remained significant (.20 at $p < .01$), and it is still quite close to the total effect of these two variables (.23 at $p < .001$). With regard to self-esteem, no correlation was found between two generations' measures in both direct effect and total effect. G1 self-esteem was not associated with later working in complex jobs; however, parents who had complex jobs was associated with higher levels of child's self-esteem (.07 at $p < .05$).

With regard to the mediating variable parental educational expectations for their child, it was significantly correlated to both generations' self-efficacy. G1 self-efficacy was related to higher levels of educational expectations for their child (.23 at $p < .001$), and parents who held higher educational expectations for their child were more likely to have children who held higher self-efficacy (.23 at $p < .001$). Among the proposed mediating variables, the magnitude of this mediating effect (.053 at $p < .001$) was second

only to the mediating variable of communicative parenting (.12 at $p < .01$). However, parental educational expectations did not mediate the correlation of G1 self-esteem and G2 self-esteem, of which the total effect was nonsignificant (.03). The result suggested that parental educational expectation for their child had an impact on child's self-esteem (.06, $p < .05$), but an individual's early self-esteem had no direct correlation to his/her education expectation for his/her own children (.00 at $p < .925$).

The last mediating variable, parental substance use, also mediated a small but significant indirect effect of G1 self-efficacy on G2 self-efficacy. G1 self-efficacy was negatively associated with G1's substance use in adulthood (-.08 at $p < .10$), which in turn was related to lower levels of child's self-efficacy (-.11 at $p < .05$). The remaining direct effect of G1 self-efficacy on G2 self-efficacy (.23 at $p < .001$) was not much different from the total effect (.26 at $p < .001$). That is, the effect mediated by parental substance use is small even though this variable significantly mediated the transgenerational effect of self-efficacy.

The final step was to include all the significant mediators into a full model to examine if these mediators still held. These mediators were also specified to be reciprocally correlated, given their correlations shown in correlation matrices and the theoretical considerations discussed in the literature. Although G1 self-efficacy was not significantly related coercive parenting in Model 1, coercive parenting was significantly associated with its partner mediator, communicative parenting (-.31 at $p < .001$). In addition, coercive parenting was significantly associated with G2 self-efficacy. These concerns necessitated the inclusion of coercive parenting in the final model since it

should discount the effects of communicative parenting on G2 self-efficacy. The inclusion of coercive parenting thus would facilitate the analysis to obtain conservative estimates of other mediating variables.

The most striking finding in the analysis of the full model (Figure 4) was that the direct effect of G1 self-efficacy on G2 self-efficacy ended up nonsignificant (.10), which was lower than other separate models (comparing their unstandardized coefficient in the second row of Table 14). Statistically, this means that these mediators had additive mediating effects and their sum was large enough to decompose the direct effect of G1 self-efficacy on G2 self-efficacy to become nonsignificant. Each mediator only explained away a certain amount of the transgenerational effect of self-efficacy, and remained a significant direct effect between these two self-efficacy measures unexplained (see Model 1 to Model 5, Table 14).

Theoretically, the findings of Full Model suggested that the proposed mediators were probably sufficient to explain the intergenerational transmission of self-efficacy. That is, if individuals held higher levels of self-efficacy, they would be more likely to adopt communicative parenting (.17 at $p < .05$) when they became parents. Additionally, these individuals would also be more likely to receive higher education (.15 at $p < .001$), have a more complex and autonomous job (.12 at $p < .05$), and hold higher educational expectations for their children (.16 at $p < .01$). These parents were also less likely to use coercive parenting (-.07) although it was not statistically significant as found in Model 1. The correlation between G1 self-efficacy (in adolescence) and parental self-efficacy (in adulthood) declined from .12 in Model 2 to

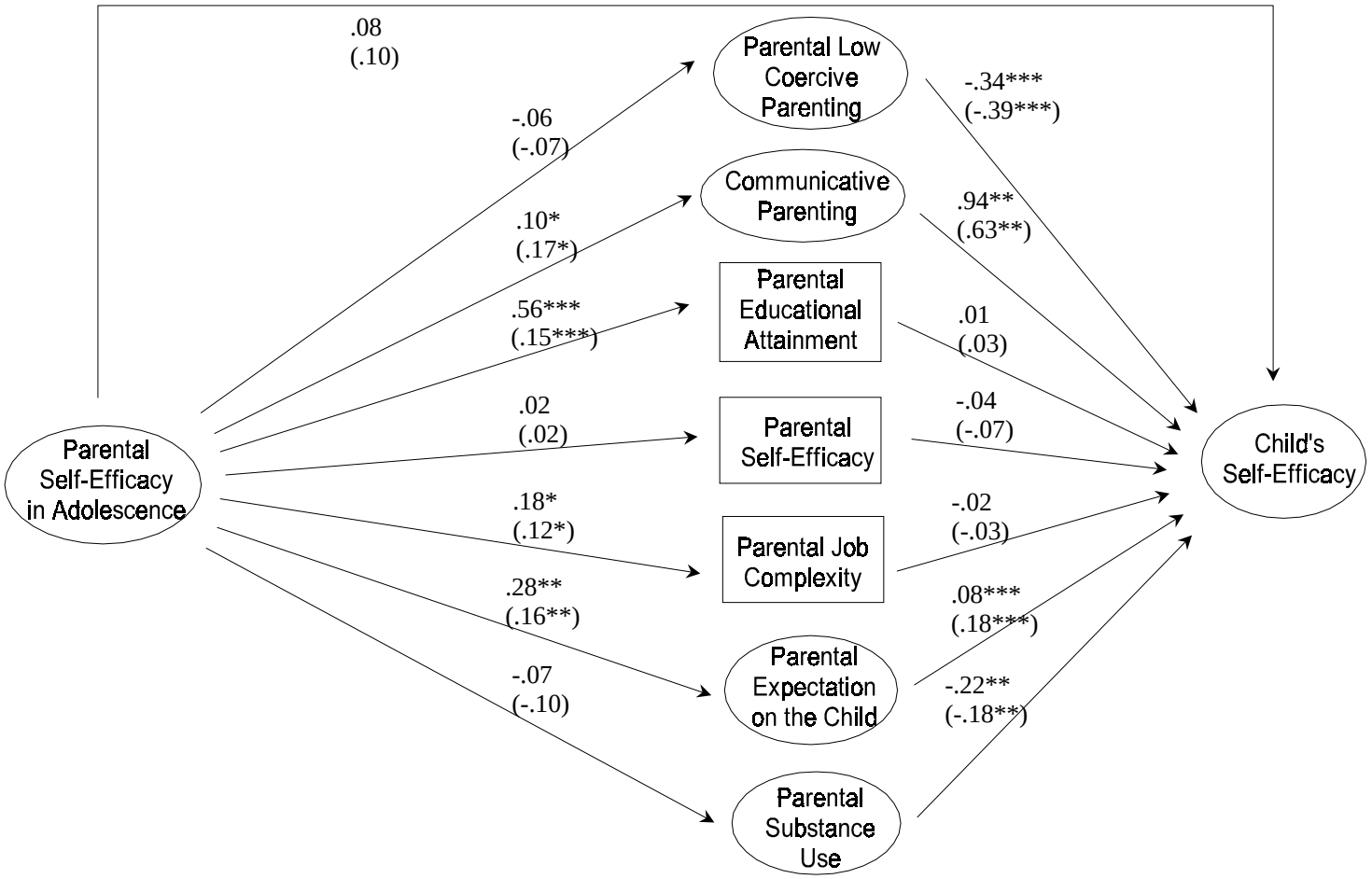

Figure 4. Unstandardized (Standardized) Structural Coefficients for Full Model of Intergenerational Transmission of Self-Efficacy among Intact Families

Note: Control variables and demographics were omitted forparsimony of model presentation. The mediating variables were muturally correlated but not shown in this figure.

.02 (unstandardized) in the final model. Similarly, the correlation between G1 self-efficacy and parental substance use became nonsignificant although the magnitude of the unstandardized coefficient remained unchanged (-.07).

Some of the correlations between these mediators and child's self-efficacy dropped in the final model although they were significant in separate models. Parental educational attainment, parental self-efficacy, and parental job in complex categories were the variables found to be not significantly related to child's self-efficacy in the Full Model. Coercive parenting, however, was strongly associated with child's self-efficacy (-.39 at $p < .001$), which was stronger than the effect in Model 1 (see Table 14). A similar result was also found for the correlation between parental substance use and child's self-efficacy (-.18 at $p < .01$). Communicative parenting maintained a strong correlation to child's self-efficacy (.63 at $p < .01$), as did parental educational expectation (.18 at $p < .001$).

Similar to the results of the separate models, Full Model suggested that G1 self-esteem was not related to the proposed mediating variables except for parental self-efficacy in adulthood (.12 at $p < .05$), which was also found in Model 2. Noticeably, G1 self-efficacy was not related to this mediator (.02), which is most intriguing and unexpected. Further discussion will be introduced in the next chapter. In addition, most of the proposed mediating variables were not associated with child's self-esteem except the two parenting measures.

Similar to G2 self-efficacy, G2 self-esteem was highly correlated to lower coercive parenting (-.36 at $p < .001$) and greater communicative parenting (.38 at $p <$

.01). These results echoed the theoretical argument discussed in the literature review that parenting is essential for a child's well-being and development of healthy self-concept. Less use of coercive parenting is likely to reduce direct threats to a child's autonomy and confidence. Communicative parenting also would encourage child's taking challenges and praise his/her achievements. Children under such parenting environments would consider themselves self-efficacious persons and would be more likely to succeed in their endeavors. Such spirits often lead to higher chances in success and generate high(er) feelings of self-worth, or self-esteem.

As the all the models suggested, self-efficacy and self-esteem were highly correlated reciprocally in both generations (from .30 to .61 in models and all at $p <$ .001). However, self-efficacy and self-esteem seemed to not correlate with each other cross generations. That is, G1 self-efficacy was not related to G2 self-esteem, and G1 self-esteem was not related to G2 self-efficacy. Nevertheless, there was a significant and positive correlation between G1 self-efficacy and G2 self-esteem in Model 2 to Model 5. This suggested that G1 self-efficacy may contribute to G2's development of self-esteem by similar mechanisms described in this paragraph earlier. G1 self-esteem, however, lacked intertwining considerations of social situations and social structure as discussed in the chapters of Introduction and Empirical Literature. Therefore, self-esteem may be less likely transgenerational (see Table 14) or to influence other self-concepts of the next generation. The results found in the analyses of intact-family data support the literature in this regard.

Among the models for intact families, a child's age was related to the higher levels of child's self-efficacy (.15 at $p < .05$) at Model 1. This is not consistent, however, with the results shown in Table 7, which it was a negative correlation. The inconsistent results were attributed to that the indirect effects of child's age was negative (-.24 at $p < .01$), which was so strong that it overcame the significant direct effect of child's age on child's self-efficacy in the no-mediating models shown in Table 7. In Model 5, however, child's age was negatively associated with child's self-efficacy (-.07 at $p < .05$), but no such significant correlation was found in the other models. The literature generally suggested a slight positive relation between age and self-efficacy but self-efficacy can be destabilized during transition grades (Cole et al. 2001b). Although the current findings also found a positive correlation in the Full Model, the findings suggested a negative indirect correlation between child's age and self-efficacy (-.11 at $p < .10$, not shown in tables). For example, in the Full Model, it suggested that the older a child, the less coercive parenting (-.16 at $p < .01$, not reported in tables) and less communicative parenting (-.27 at $p < .001$, not reported in tables) the child received. Because of adolescents' enlarged social relationships in school and peer groups, parents demonstrated less control over the behavior of their late adolescent children, and fewer opportunities to communicate with them as well . These two mediating paths showed one positive indirect correlation ($-.16 \times -.39 = .06$) and one negative indirect correlation ($-.27 \times .63 = -.17$) between child's age and child's self-efficacy. Obviously, the negative indirect coefficient was much larger than the positive indirect coefficient and even larger

than the sum of both the positive indirect coefficient and direct coefficient between child's age and self-efficacy (.06 + .08 = .14).

From Model 2 to Model 5, the results suggested that boys reported lower levels of self-efficacy (-.12 at $p < .001$). However, the correlation declined to nonsignificant in the Full Model, and a similar result showed in Model 1. Findings between sex and self-efficacy were more consistent among models in the first generation, in which fathers reported lower levels of self-efficacy, but the correlation coefficients in all models were not significant.

Also quite consistently, all models suggested that being African Americans was associated with lower levels of self-efficacy among the first generation (from -.09 to -.12 at $p < .001$). Similar findings were also found among the second generation, but the significant correlation was not supported in Full Model and Model 1. Being Latino Americans was not associated with reported self-efficacy by the first generation, but a negative significant correlation was found in the Full model (-.16 at $p < .05$) and Model 1 (-.15 at $p < .001$).

Grandparents' educational attainment was significantly associated with G1 self-efficacy in all models (from .27 to .29 at $p < .001$), but was not associated with G2 self-efficacy. These findings suggested the influence of education (or maybe SES) on self-efficacy were only for the immediate generation, likely because grandparents have less contact with their grandchildren as compared to parents. Noteworthy, the above finding was consistent with the effect of parental education on child's self-efficacy in Model 2.

However, the latter then was found non-significant in the Full Model that other mediating variables were all introduced.

G1 self-efficacy had a moderate impact on his/her future family economic condition (from .06 to .11), but only in Model 2 to Model 5 were the coefficients significant at $p < .05$. A strong relation between these variables was not expected since the family economic condition was accounted for by the whole household income divided by the number of family members. That is, only one parent's (the subject's) self-efficacy was used to estimate the whole family's economic condition. Spouse's self-efficacy should have the same amount of contribution to the family economic condition, but spouse's adolescent self-efficacy was not obtainable for analysis. Consequently, family economic condition had an impact on child's self-efficacy (from .05 to .15), although the correlation coefficient was not significant in Full Model and Model 1. Family economic condition affected the development of child's self-efficacy by demarcating the (limited) resources available to them and by their own perceptions of potential success in such environments.

The data-model fit nicely in lights of the fit indices and the expected findings predicted by the theories. Most of the fit indices were above .90 indicating a good fit between proposed model and data except three NNFI values were lower than .90 in Model 2, Model 3, and Full Model. The Root Mean Square Error of Approximation ranged from .043 to .063 indicating a good data-model fit (< .08). The ratio of chi-square to it degree of freedom ranged from 3.84 to 6.45. The overall model fit suggested these models were acceptable and they are close between the models.

Single Family Models

Table 15 presents the results of analyses for single-family samples. The analytical procedure for single-family group is the same as that for intact-family group. Five mediating models were estimated and each of these models only include one (or one set of) mediating variable(s). Unlike the separated models estimated for intact families, these models for single families showed some meaningful differences. Some of the direct effect of G1 self-efficacy on G2 self-efficacy in the mediating models of parental education and parental self-efficacy was declined and became nonsignificant but this did not happen for the same model estimated in intact-family group. This indicated that these two mediating variables were sufficient (by themselves without other mediating variables) to explain away the significant intergenerational effect of parallelism in self-efficacy for single-family group but not for intact-family group. However, the other mediating variables themselves were not able to decompose the effect of the intergenerational transmission of parental self-efficacy.

In Model 1 of single-family sample (column 2, Table 15), G1 self-efficacy was associated with less use of coercive parenting (-.09 at $p < .40$) and greater use of communicative parenting (.21 at $p < .05$). The fact that the correlation between G1 self-efficacy and coercive parenting was not significant may be due to its negative correlation to communicative parenting (-.22 at $p < .01$, not shown in tables). Furthermore, these two parenting techniques consequently had significant impact on G2 self-efficacy (-.25 at $p < .01$ and .51 at $p < .001$, respectively). These two parenting variables explained a considerable amount of the indirect effect (.13 at $p < .05$) between G1 self-efficacy and

Table 15. Unstandardized (Standardized) Structural Coefficients in Single-Family Models

Independent Variables	Dependent Variables	Model 1 N = 899	Model 2 N = 1,114	Model 3 N = 942	Model 4 N = 628	Model 5 N = 1,115	Model 6 N = 898	Model 7 N = 484
G1 Self-Efficacy (G1SE)	G2 Self-Efficacy (G2SE)	.06 (.08)	.12 (.14)	.14^{+} (.15^{+})	.16^{+} (.17^{+})	.12^{+} (.14^{+})	.05 (.06)	.04 (.05)
G1SE	Coercive Parenting (COEP)	-.11 (-.09)	—	—	—	—	-.03 (-.02)	-.31 (-.21)
G1SE	Communicative Parenting (COMP)	.25* (.21*)	—	—	—	—	.34** (.28**)	.52** (.35**)
G1SE	Parental Education (PE)	—	.57** (.17**)	—	—	—	.90*** (.27***)	1.04*** (.27***)
G1SE	Parental Self-Efficacy (PSE)	—	.40*** (.22***)	—	—	—	.30* (.16*)	.55** (.26**)
G1SE	Job Complexity (JC)	—	—	.08 (.05)	—	—	—	—
G1SE	Educational Expectation on the Child (EE)	—	—	—	.33^{+} (.14^{+})	—	—	.49** (.23**)
G1SE	Parental Substance USE (PSU)	—	—	—	—	-.23* (-.23*)	-.11 (-.14)	-.04 (-.06)
COEP	G2SE	-.17** (-.25**)	—	—	—	—	-.16** (-.26**)	-.19* (-.32*)
COMP	G2SE	.36*** (.51***)	—	—	—	—	.35*** (.52***)	.37* (.64*)

Table 15. Continued.

Independent Variables	Dependent Variables	Model 1 N = 899	Model 2 N = 1,114	Model 3 N = 942	Model 4 N = 628	Model 5 N = 1,115	Model 6 N = 898	Model 7 N = 484
PE	G2SE	—	.02* (.09*)	—	—	—	.00 (.00)	-.03 (-.12)
PSE	G2SE	—	.01 (.02)	—	—	—	-.01 (-.03)	-.08^{+} (-.20^{+})
JC	G2SE	—	—	-.02 (-.03)	—	—	—	—
EE	G2SE	—	—	—	.07** (.18**)	—	—	.01 (.02)
PSU	G2SE	—	—	—	—	-.07 (-.08)	.02 (.02)	-.13 (-.10)
G1 Self-Esteem	G2 Self-Esteem	.10* (.11*)	.08^{+} (.09^{+})	.09^{+} (.10^{+})	.07 (.07)	.09* (.09*)	.11* (.12*)	.12^{+} (.13^{+})
G1 Self-Esteem	COEP	.02 (.06)	—	—	—	—	.01 (.03)	.04 (.10)
G1 Self-Esteem	COMP	.01 (.02)	—	—	—	—	-.01 (-.02)	-.03 (-.06)
G1 Self-Esteem	PE	—	-.02 (-.02)	—	—	—	-.09^{+} (-.08^{+})	-.12^{+} (-.11^{+})
G1 Self-Esteem	PSE	—	.01 (.01)	—	—	—	.02 (.03)	.00 (-.01)
G1 Self-Esteem	JC	—	—	.01 (.02)	—	—	—	—
G1 Self-Esteem	EE	—	—	—	.05 (.08)	—	—	.01 (.02)
G1 Self-Esteem	PSU	—	—	—	—	.01 (.03)	.01 (.02)	.01 (.03)
COEP	G2 Self-Esteem	-.17** (-.29**)	—	—	—	—	-.67*** (-.30***)	-.99** (-.44**)

Table 15. Continued.

Independent Variables	Dependent Variables	Model 1 N = 899	Model 2 N = 1,114	Model 3 N = 942	Model 4 N = 628	Model 5 N = 1,115	Model 6 N = 898	Model 7 N = 484
COMP	G2 Self-Esteem	.73*** (.30***)	—	—	—	—	.68*** (.29***)	.33 (.15)
PE	G2 Self-Esteem	—	.04 (.05)	—	—	—	-.04 (-.05)	-.08 (-.09)
PSE	G2 Self-Esteem	—	.06 (.04)	—	—	—	-.06 (-.04)	-.11 (-.07)
JC	G2 Self-Esteem	—	—	.06 (.03)	—	—	—	—
EE	G2 Self-Esteem	_	—	—	.11^{+} (.08^{+})	—	—	.04 (.03)
PSU	G2 Self-Esteem	—	—	—	—	-.20 (-.07)	-.27 (-.07)	-.14 (-.03)
G1 SE	G2 Self-Esteem	-.04 (-.01)	.12 (.04)	.09 (.03)	.36 (.11^{+})	.12 (.04)	-.04 (-.02)	.14 (.04)
G1Self-Esteem	G2 SE	.02 (.07)	.02 (.06)	.00 (.01)	.00 (.00)	.02 (.06)	.02 (.08)	.01 (.06)
G1 SE ⟷	G1 Self-Esteem	.60*** (.61***)	.59*** (.59***)	.54*** (.61***)	.53*** (.60***)	.58*** (.59***)	.61*** (.61***)	.56*** (.61***)
G2 SE ⟷	G2 Self-Esteem	.26*** (.35***)	.47*** (.58***)	.44*** (.58***)	.46*** (.59***)	.47*** (.58***)	.26*** (.35***)	.28*** (.37***)
G2 Age	G2SE	.01 (.06)	-.01 (-.05)	-.02* (-.10*)	-.02 (-.08)	-.02^{+} (-.07^{+})	.02 (.06)	.02 (.08)
Father	G1SE	.03 (.02)	-.02 (-.01)	-.02 (-.02)	.02 (.01)	-.02 (-.02)	.03 (.02)	.06 (.04)
Boy	G2SE	.00 (.00)	-.16*** (-.16***)	-.17*** (-.18***)	-.16*** (-.17***)	-.16*** (-.16***)	.00 (.00)	-.04 (-.04)
African Americans	G1SE	-.12* (-.11*)	-.17*** (-.15***)	-.18*** (-.16***)	-.15** (-.14**)	-.18*** (-.15***)	-.13* (-.11*)	-.05 (-.04)

Table 15. Continued.

Independent Variables	Dependent Variables	Model 1 N = 899	Model 2 N = 1,114	Model 3 N = 942	Model 4 N = 628	Model 5 N = 1,115	Model 6 N = 898	Model 7 N = 484
African Americans	G2SE	-.08^{+} (-.09^{+})	-.14*** (-.14***)	-.12* (-.12*)	-.10^{+} (-.09^{+})	-.15** (-.15**)	-.07 (-.08)	-.03 (-.03)
Latino Americans	G1SE	.02 (.01)	.04 (.02)	.02 (.01)	.03 (.02)	.04 (.02)	.02 (.01)	.10 (.06)
Latino Americans	G2SE	.04 (.05)	-.05 (-.03)	-.07 (-.04)	-.03 (-.02)	-.05 (-.03)	.06 (.04)	.18 (.12)
Grandparents' Education	G1SE	.08*** (.20***)	.10*** (.26***)	.07** (.19**)	.06*** (.17***)	.10*** (.25***)	.09*** (.22***)	.08** (.23**)
Grandparents' Education	G2SE	.00 (.00	.01 (.03)	.02 (.05)	.01 (.02)	.02 (.06)	.00 (-.01)	.03 (.09)
G1SE	Average Income Per Capita (AIPC)	.36*** (.21***)	.35*** (.21***)	.22* (.14*)	.29* (.17*)	.36*** (.21***)	.31** (.19**)	.12 (.07)
AIPC	G2SE	.03 (.05)	.03 (.06)	.05^{+} (.08^{+})	.03 (.05)	.04^{+} (.08^{+})	.04 (.09)	.03 (.06)
	$\chi^2_{(df)}$	$327.14_{(84)}$	$288.39_{(55)}$	$246.81_{(51)}$	$204.24_{(64)}$	$300.83_{(64)}$	$377.68_{(120)}$	$339.78_{(150)}$
	χ^2/df	3.89	5.24	5.55	4.84	4.70	3.15	2.27
	RMSEA	.057	.062	.064	.059	.058	.049	.051
	GFI	.96	.97	.97	.96	.97	.96	.95
	AGFI	.92	.92	.92	.92	.93	.92	.89
	NFI	.86	.89	.88	.90	.88	.87	.86
	NNFI	.80	.80	.79	.87	.82	.81	.84
	CFI	.89	.91	.90	.93	.90	.90	.91
	IFI	.89	.91	.90	.93	.90	.91	.92

Note: G1 indicates parental generation and G2 indicates child generation.
+ $p < .10$; * $p < .05$; ** $p < .01$; and *** $p < .001$ (two-tailed test).

G2 self-efficacy, given the total indirect effect estimated in this model was .14 and the total effect was .21 ($p < .05$). That is, these two parenting variables explained almost two-thirds of the total effect of G1 self-efficacy on G2 self-efficacy (.13 out of .21, or 62%) and yet remained a nonsignificant direct effect between the two self-efficacy measures (.08). The interpretation then suggested that parental self-efficacy in adolescence can be transmitted to their children through less use of coercive parenting and greater use of communicative parenting; and both of the parenting techniques explained more than 60 percent of intergenerational parallelism of self-efficacy among single families. Between these two parenting variables, communicative parenting was more influential because itself explained 51 percent (with a mediating effect of .11) of the total effect of transgenerational continuity of self-efficacy. Although these two parenting variables showed a greater magnitude of the indirect effect in intact-family group, the proportion of the total effect of transgenerational continuity of self-efficacy explained away by the two parenting variables was only 50 percent. Of course, the total effect of intergenerational parallelism of self-efficacy was larger in intact-family samples than in single-family ones, although the difference between these two groups was not statistically significant (unstandardized coefficients .21 and .15 with standard errors of .05 and .07, respectively, see Table 7 and 7; $\Delta\chi^2 = .01$ at $p < .900$).

Similar to the findings of intact families, G1 self-esteem was unrelated to either coercive parenting (.06) or communicative parenting (.02), even though these two parenting skills were respectively significantly associated with G2 self-esteem (-.29 at $p < .01$ and .30 at $p < .001$, correspondingly, see Table 15).

In Model 2, parental educational attainment mediated a small but significant amount of effect between G1 self-efficacy and G2 self-efficacy. G1 self-efficacy was associated with greater parental educational attainment in adulthood (.17 at $p < .01$), which in turn, had a positive influence on child's development of higher self-efficacy beliefs (.09 at $p < .05$). G1 self-efficacy was also related to parental self-efficacy in adulthood (.22 at $p < .001$); however, the latter was unrelated to child's self-efficacy (.02). In other words, only parental educational attainment mediated a significant effect between the two intergenerational self-efficacy measures. In addition, the results of Model 2 also showed that both parental educational attainment and parental self-efficacy were unassociated with either G1 self-efficacy or G2 self-efficacy.

Model 3 examined the mediating effect of job complexity. The results demonstrated that both G1 self-efficacy and G2 self-efficacy were not correlated to parental job choices. However, in the Model 3 of intact-family sample, if parents worked in a more complex job, it was related to both parental earlier self-efficacy in adolescence and child's self-efficacy. Model 3 in single-family and intact-family groups thus showed how the mediating variable, job complexity, had differential intervening effects in the intergenerational transmission of self-efficacy. Nevertheless, the mediating effect of job complexity in intact-family Full Model declined to nonsignificant while other mediating variables were also introduced. Noteworthy, the measure used for job complexity in this study was imprecise. If more details of job description were available to the current study, the mediating effect of job complexity in intergenerational transmission of self-efficacy would have been more likely to be found, since the over-

simplified measure of job complexity had shown the encouraging (but not quite promising) findings in intact-family sample.

Model 4 experienced a great loss of sample cases for the reason that many spouses' measure of educational expectation on the child were missing. This is not surprising, as the non-custodial parent had infrequent contact with children. Some may argue that this model should only include the educational expectation reported by custodial parent rather than by both parents because the non-custodial parents should have much less influence on children. This argument sounds reasonable, however, a further examination of both parents' reports in measurement model showed that both reports generated good factor loadings on latent construct of parental educational expectation on children (standardized factor loading .95 for father's report and .88 for mother's report, $p < .001$). Furthermore, it seems reasonable to assume that the non-custodial parent should be able to convey his/her expectation to his/her child through all types of communication tools. Even though communication may be infrequent, the frequency does not necessarily make the communication ineffective. Therefore, the current study retained samples provided by both parents' reports in the variable and obtained only 628 cases of sample for analysis (total sample was 1,616). The covariance matrix and correlation matrix of this sample are very close to those of the total single-family sample, which may endorse the correctness of the following analysis. The results of structural equation model showed that G1 self-efficacy slightly increased his/her educational expectation on his/her children (.14 at $p < .10$), which in turn, enhanced the children's sense of self-efficacy (.18 at $p < .01$). With regard to transmission of self-

esteem across generations, no significant mediating effect was found through parental educational expectation on children although this variable was moderately related to child's self-esteem (.08 at $p < .10$).

In Model 5, the last mediating variable, parental substance use, was negatively associated with G1 self-efficacy (-.23 at $p < .05$), but was not related to G2 self-efficacy (-.08 at $p < .20$). Nevertheless, the variance explained by this variable is not less than that explained by the variable of parental educational attainment. Moreover, these two mediating variables were related to each other. Therefore, a more conservative decision was made to include both variables in Full Model due to their competing nature. Again, G1 self-esteem and G2 self-esteem were found unrelated to the last proposed mediating variable, parental substance use.

A Full Model for single-family group was not a reasonable choice for the next analysis. Model 3 (Table 15) had demonstrated that job complexity could not mediate the transgenerational effect of self-efficacy. Therefore, the next analysis excluded job complexity. Exclusion of job complexity also helped to maintain sample size for analysis because this variable had quite a large proportion of missing cases. Model 7 was the results of analysis including all mediating variables except job complexity. This model generated only 484 samples for analysis. This outcome mainly resulted from the inclusion of parental educational expectation for analysis. Parental educational expectation was found to significantly mediate the effect of G1 self-efficacy on G2 self-efficacy in Model 4. This variable lost extra 400+ cases comparing to variables of parental educational attainment or parental substance use. Therefore, the sample size for

analysis dropped to 484, generating slightly larger covariances among variables, which may cause the results to be biased. As such, an alternative solution for this concern was to drop this variable for further analysis in Model 6, while Model 7 still contained this referent in order to determine if parental educational expectation still held its significant effect mediating the transgenerational effect of self-efficacy. Although the results of Model 7 were biased due to few larger covariances among variables, the estimated correlation coefficient between variables should have provided consistent information with Model 6 except that the enlarged standard errors would influence the significant level of correlation coefficients. In fact, some coefficients in Model 7 were still large similar to those in Model 6. However, they were not statistically significant in Model 7 but were significant in Model 6. Nevertheless, few structural coefficients in Model 7 were very different from those in Model 6, and this may be attributed to attrition of large proportion of missing cases in Model 7. In addition, this attrition may have also contributed to some low factor loadings in Model 7 (see Table 16). Since Model 6 was more reliable and Model 7 sought to examine if parental educational expectation could hold its significant mediating effect in the final models, the results of Model 6 will be first described and interpreted and then the results of Model 7 will be briefly introduced for the additional information with regard to the variable of parental educational expectation.

Model 6 (or Figure 5) demonstrated that G1 self-efficacy was not related to coercive parenting (-.02), or to parental substance use (-.14). However, G1 self-efficacy was significantly related to greater use of communicative parenting (.28 at $p < .01$),

Table 16. Unstandardized (Standardized) Factor Loadings in Full Models

	Intact Family N = 1,399	Single Family (Model 6 in Table 15) N = 898	Single Family (Model 7 in Table 15) N = 484
G1 LC	1.0 (.69)	1.0 (.64)	1.0 (.62)
G1 PCOE	.99 (.66)	1.08 (.66)	1.34 (.74)
G2 LC	1.0 (.61)	1.0 (.60)	1.0 (.59)
G2 PCOE	.89 (.65)	.93 (.60)	1.0 (.64)
Grandmother Education	1.0 (.77)	1.0 (.78)	1.0 (.74)
Grandfather Education	1.37 (.82)	1.28 (.76)	1.27 (.78)
Father's Educational Expectation on Child	1.0 (.95)	—	1.0 (.87)
Mother's Educational Expectation on child	.87 (.91)	—	1.03 (.93)
Parental Alcohol Use	1.0 (.55)	1.0 (.51)	1.0 (.37)
Parental Drug Use	1.30 (.71)	1.05 (.67)	1.59 (.69)
Coercive Parenting -Mom's Report	1.0 (.52)	single-parent's report 1.0 (.53)	single-parent's report 1.0 (.44)
Coercive Parenting - Dad's Report	1.06 (.56)		
Coercive Parenting - Child's Report on Mom	1.57 (.70)	child's report on single-parent 1.52 (.68)	child's report on single-parent 1.35 (.50)
Coercive Parenting - Child's Report on Dad	1.93 (.94)		
Communicative Parenting - Mom's Report	1.0 (.52)	single-parent's report 1.0 (.55)	single-parent's report 1.0 (.56)
Communicative Parenting - Dad's Report	2.22 (.89)		
Communicative Parenting - Child's Report on Mom	1.80 (.60)	child's report on single-parent 2.14 (.70)	child's report on single-parent 1.69 (.53)
Communicative Parenting - Child's Report on Dad	2.01 (.94)		

Note: LC stands for locus of control and PCOE stands for perceived control over one's environment. LC and PCOE are the observed indicators of self-efficacy. Standardized coefficients are in parentheses.

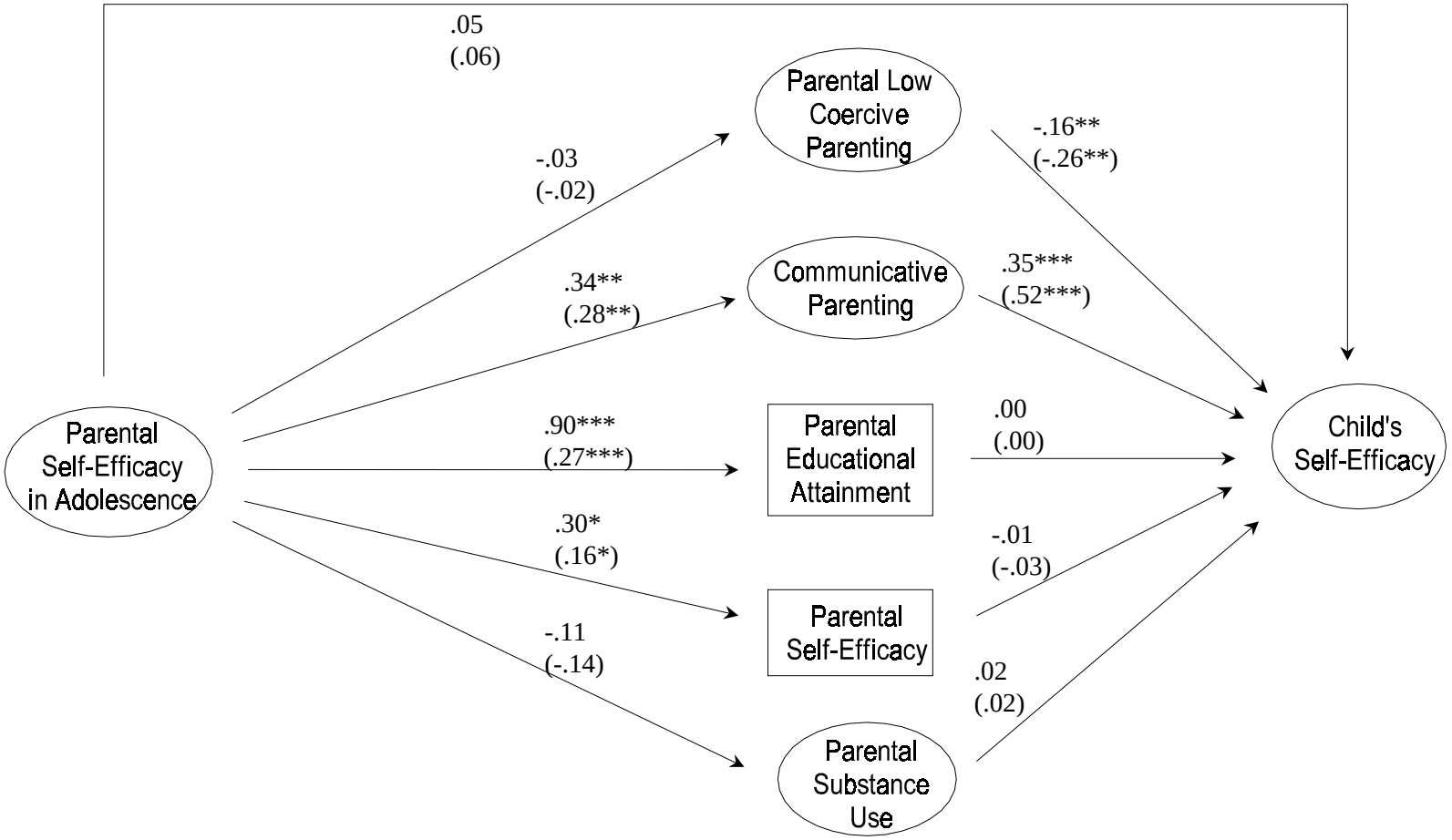

Figure 5. Unstandardized (Standardized) Structural Coefficients for Full Model of Intergenerational Transmission of Self-Efficacy among Single Families

Note: Control variables and demographics were omitted forparsimony of model presentation. The mediating variables were muturally correlated but not shown in this figure.

higher G1's educational attainment (.27 at $p < .001$), and enhanced G1's self-efficacy in adulthood (.16 at $p < .05$). Consequently, some of the above mediating variables demonstrated impacts on child's self-efficacy (see Table 16 or Figure 5).

Parental use of coercive parenting led to lower levels of child's self-efficacy (-.26 at $p < .01$). A child's self-efficacy also increased with parental use of communicative parenting (.52 at $p < .001$). However, other mediating variables, including parental education, parental self-efficacy, and parental substance use were not correlated to child's self-efficacy (.00, -.03, and .02, respectively).

With respect to the relations between self-esteem and the mediating variables, no significant mediating pathways were found from G1 self-esteem to G2 self-esteem. Nonetheless, less use of coercive parenting and greater use of communicative parenting were significantly associated with enhanced child's self-esteem (-.30 and .29 at $p < .001$, respectively).

Compared to Model 6, the estimation of Model 7 included one more variable: parental educational expectation. This variable was related to G1 self-efficacy (.23 at $p < .01$, column 9 of Table 15), but was not related to G2 self-efficacy (.02). Moreover, this variable had no significant relations with G1 self-esteem and G2 self-esteem (.02 and .03, respectively). Although the coefficient between communicative parenting and G2 self-esteem was not statistically significant, the size is relative large (.15, standardized), compared to other nonsignificant coefficients in the Model 7. The nonsignificant coefficient of .15 was due to a large standard error for this coefficient. This was one of the consequences of small sample size resulting in Model 7.

With regard to the correlations between self-concepts and controlling variables in single-family group, they were generally consistent with those in intact-family groups but with a few exceptions. Unexpectedly, there was a moderate intergenerational parallelism of self-esteem (.12 at $p < .05$, column 8 in Table 15). However, this intergenerational parallelism was not mediated by any of proposed mediating variables. The current study thus cannot explain this intriguing finding. Such intergenerational parallelism was also found in all separated mediating models except Model 4, which suffered the largest loss of samples from missing data. Further research should explore the potential explanation of this finding.

Another difference between the finding of single-family and intact-family groups was that Latin American ethnicity was not related to child's self-efficacy in single-family samples (.04, column 8 in Table 15), but was negatively correlated in intact-family samples (-.16 at $p < .05$, column 8 in Table 14). The current research provides no evidence to support an explanation for the difference. However, it might be possible that the racial identity of being a Latino American was probably not much worse than being raised in a single family. That is, the disadvantages of being a child of a single parent might be superior to those of being a Latino American. Therefore the derogated effects of being a Latino American (less social resources available to them, Bean and Tienda 1987) might be less harmful than those effects that the immediate social environment of a single-parent family found difficult to conquer such as economic hardship, less parental involvement, and lack of social network (see Chapter III). This explanation, however, needs to be examined by other research.

Lastly, the G1 self-efficacy was significantly associated with later family economic condition (average income per capita) in single-family samples (unstandardized coefficient was .31 at $p < .01$), but this correlation was not significant in intact-family samples (.10, unstandardized). While intact families could include single- or dual-income families, depending on if both husband and wife have a job, single families necessarily signify only one income from the single parent. Thus, the relation found in single families should be stronger than that found in intact families since the latter might include a spouse's income. In other words, the coefficient found in intact families was close to an estimate for the relation between personal self-efficacy and family income and that found in single families was more close to an estimate for the relation between personal self-efficacy and personal income. As a result, the coefficient found in single-family samples will be larger than that found in intact-family samples.

Similar to the findings of intact-family samples, single-family samples showed that G1 self-efficacy was not related to G2 self-esteem, and G1 self-esteem was not related to G2 self-efficacy. Furthermore, G1's self-efficacy and self-esteem were reciprocally correlated (.61 at $p < .001$), as was G2's self-efficacy and self-esteem (.35 at $p < .001$). It is interesting to find that in both single- and intact-family groups, the relation between self-efficacy and self-esteem almost doubled among the first generation as that among the second generation. No solid explanation was provided by the current research for this finding. One possible explanation is the general social changes that occurred in the past 20+ years in our society, such that the general social environment for adolescents in 70s and 90s may be quite different. Research examining the

differences in social environments that adolescents faced in 70s and 90s should be able to provide some insights for the current findings.

The overall model fit indices for all models (including Model 6) were good. The ratio of chi-square to degree of freedom ranged from 2.27 to 5.24. Their values of Root Mean Square Error of Approximation were no bigger than .062 (should not be larger .08).

The data-model fit indices were generally above or very close to .90 except the values of NNFI in several models. In considerations of multiple statistical standards for evaluation of these models, these models seem acceptable. However, few of the covariances among variables in Model 7 were larger than those among all samples, and so the results of Model 6 should be interpreted with caution.

CHAPTER VI

CONCLUSIONS

Summary and Discussion

In this study, I simultaneously examined the effects of several mediating variables, including coercive parenting, communicative parenting, parental education, parental self-efficacy, parental job complexity, parental educational expectation for children, and parental substance use, as intervening mechanisms in the intergenerational transmission of self-efficacy. By adopting a longitudinal data set including parent-child dyads from both single families and intact families the analysis was characterized by the use of multigenerational measurement of self-efficacy at a comparable developmental stage in two generations. The current research first examined the differential patterns of intergenerational parallelism of self-efficacy in terms of the three moderating variables, family structure, gender, and race/ethnicity and the parent-child gender dyads. Furthermore, I used both parent- and child-report of parenting patterns and considered the possible confounding effect of contextual continuity in accounting for intergenerational parallelism in self-efficacy. These methodological features allowed the current research to preclude many potential pitfalls of research on intergenerational transmission of self-efficacy.

In any case the findings supported the theoretical expectations regarding self-efficacy transmission between generations. A baseline model detected a significant effect of G1 self-efficacy in adolescence on G2 adolescent self-efficacy in both intact- and single-family samples. This relationship was only unchanged when certain

demographic variables and control variables (including self-esteem of both generations and average income per capita) were introduced. Such variables were interpretable as controlling the potential influence of contextual continuity of socioenvironmental variables on both generations (Kaplan and Liu 1999). The inclusion of self-esteem measures of both generations strengthened the research findings by excluding the potential argument for confounding influences of related self-concepts across generations. Finally, the introduction of mediating variables provided support regarding how self-efficacy was transmitted between generations. The inclusion of all mediating variables helped to find the variables that were likely more essential in the transmitting processes.

This study attempted to examine the moderating effect of family structure, gender and race/ethnicity on the intergenerational parallelism of self-efficacy. The findings seemed to refute a statistically significant difference in the parallelism of G1 self-efficacy and G2 self-efficacy, although some sizable differences between genders were noticeable. A significant difference of the correlation between G1 self-efficacy and G2 self-efficacy was found between Non-Latino Whites and Latino Americans in both intact- and single-family samples. However, the result was questionable due to the number of single-family Latino Americans was too small and generated a structural equation model with biased structural coefficients due to enlarged standard errors (Allison 2002). Therefore, the invariance test between Non-Latino Whites and Latino Americans in single-family samples was less reliable in terms of the nature of the latter sample attrition. The same invariance test for intact-family samples was robust, but

exclusion of Latino Americans for further analyses would make the comparisons of both intact- and single-family groups implausible due to the different racial compositions. Further research should focus on finding the difference of the transmission patterns between Non-Latino Whites and Latino Americans by recruiting more Latino samples into data for analyses.

Interestingly, the intergenerational parallelism shown in Latino models was negative in both intact- and single-family samples. The negative correlation of self-efficacy between generations among Latino Americans is incongruous to the proposed theoretical reviews. Could it be related to the potential immigrant status among first generations? Although a reasonable presumption, current data cannot provide the information. Of course, the inclusion of Latino Americans in the mediating models may bring concerns to other researchers because of the negative correlation between G1 self-efficacy and G2 self-efficacy in this racial group. However, current findings may be more conservative since the estimated intergenerational parallelism of self-efficacy would be attenuated. In addition, the mediating models included the racial status, which should more or less reduce the confounding influences moderated by racial status.

The intergenerational parallelism of self-efficacy was found in both intact- and single-family groups, while the unstandardized coefficient found in the former seemed to be larger than that found in the latter. The invariance test showed no significant difference of the coefficients between intact- and single-family groups ($\Delta\chi^2$ is .01 with 1 degree of freedom, $p < .90$). Further examinations between the two family groups for boy subgroups ($\Delta\chi^2$ is 1.96 with 1 degree of freedom, $p < .20$) and the two girl

subgroups ($\Delta\chi^2$ is 0 with 1 degree of freedom) produced the similar results. Therefore, boys or girls who were raised in different family types showed no different degree of transgenerational effect of self-efficacy. In addition, there was no significant difference in the transgenerational effect of self-efficacy between the parent-child gender dyads. In sum, the invariance tests showed that gender difference in the intergenerational parallelism of self-efficacy was not supported in the current study, although a sizable difference can be observed by naked eyes. Such results may be due to some gendered subgroups' larger standard errors, given they were calculated in the equations of the tests. Theoretically however, the lack of significant differences in the findings among gender, family structure, and parent-child gender dyads may imply such differences were only trivial and probably can be overlooked in this research. Further research dealing with intergenerational transmission of self-concepts or psychological well-being should examine such differences to provide more information in this regard.

In both intact- and single-family samples, coercive parenting in part accounted for the relationship between G1 and G2 self-efficacy although the coefficients between G1 self-efficacy and coercive parenting were not statistically significant. The nonsignificant coefficients were owing to the model specification that coercive parenting was highly and reciprocally correlated to communicative parenting. The earlier analysis not shown in this report showed that the correlation between coercive parenting and G1 self-efficacy was significant in both intact- and single-family groups. In fact, the variance of the mediating effect explained by coercive parenting was nine percent of

total effect of G1 self-efficacy on G2 self-efficacy among intact families even though the variance found among single-parent families was only 3 percent.

Communicative parenting was the most important mediating variable intervening the intergenerational transmission of self-efficacy in both family groups. This variable explained almost 38 percent of total effect or 55 percent of indirect effect between the two self-efficacy measures in intact-family samples. The importance of this variable was even more substantial in single-family group. It explained 68 percent of total effect or 91 percent of indirect effect of parental early self-efficacy on child's self-efficacy. Actually, communicative parenting was the only significant mediating variable among the proposed variables in single-family samples. Other mediating variables thus were not comparably important in explaining the intervening mechanism of self-efficacy between generations for single-parent families.

Among other mediating variables estimated in Full Model of intact-family group, parental educational expectation on children explained about 10 percent of total trangenerational effect of self-efficacy or 15 percent of the total indirect effect. Parental substance use explained a slightly less amount of variance, about 7 percent of total effect or 10 percent of total indirect effect. The other two mediating variables, parental self-efficacy and parental job complexity, were not significant mediating variables for intact-family samples. They both together explained less than 2 percent of the total effect of the two intergenerational self-efficacy measures.

The error terms of mediating variables were correlated reciprocally or causally (if theoretically they are influenced by parental education). Therefore, any causal relation

between a mediating variable and either of the two self-efficacy measures were independent from the confounding effects of the other mediating variables. The current findings should receive greater validity for the above model specification. The results also suggested that the attenuated effect of parental education on child's self-efficacy was decomposed by parenting variables (not shown in this report). In other words, parental educational attainment had a significant impact on child's self-efficacy through parental adoption of less coercive and greater communicative parenting techniques. This is an important finding to explain how parental education influences child's development of self-efficacy, and maybe other self-concepts (e.g., self-esteem) or psychological well-being as well.

Generally speaking, the present research reinforces past findings regarding the reciprocal relationship between social status, as this is reflected in educational attainment, and perceived self-efficacy (Stolte 1983), which implicates performance accomplishment, vicarious experience, and related behaviors. For example, lower status individuals tend to demonstrate fewer avenues to success, which often result in feelings of low self-efficacy. These feelings subsequently influence individuals' expectations and acceptance of their incompetence (Stolte 1983) for future accomplishment; and hence a process of self-fulfilling prophecy is initiated (Rosenthal 1973). These individuals also may observe others' experience in the same social status and so learn lower evaluation of self-efficacy in that manner as well. Further, being trapped in a lower social position, their depressive affect may blunt perception of self-efficacy. While the current findings suggest that status-related variables serve as common

antecedents that only slightly attenuate intergenerational parallelism in self-efficacy, such variables (specifically, education attainment and, presumably, its correlates) also appear to mediate somewhat the causal impact of G1 self-efficacy on G2 self-efficacy.

If this research only examined the proposed mediating variables separately without inclusion of all of the variables in a single model, the conclusion of this research would recommend that every mediating variable significantly intervened the transgenerational effect of self-efficacy, according to the results of each mediating model (except the variables of parental self-efficacy in adulthood and job complexity in single-parent samples). However, the current study did not sufficiently examine the causal relations among these mediating variables, except that parental educational attainment was also specified as having causal effect on some of the other mediating variables. However, to avoid confusion, this alternative analysis was not discussed in this report, and its findings were very close to the current findings. Further research interested in the causes of child's self-efficacy may build on the findings of the current research to extensively examine the relationship among these mediating variables.

Parental self-efficacy in adolescence was found to be influential on later adult substance use in both intact- and single-family groups, while the effect was stronger in single-family group. Although this correlation was attenuated to nonsignificant in Full models due to the competing intervening variables, it is quite meaningful to consider that these two measures were obtained in a 20+ year interval. If a substance use variable was measured intermittently, it may reveal a long-term trajectory of how personal self-efficacy and substance use reciprocally influence each other. The stronger correlation in

single-families may suggest a different life trajectory from that of the married parents. It is possible that lower self-efficacy leads to a relatively abnormal life trajectory (as delinquents) during adolescence and young adulthood, which in turn results in greater commitment in non-conventional activities, and then consequently influence their marital attachment and job stability (Laub and Sampson 1993; Moffitt 1993). A further examination of the current research in this regard would increase the understanding the relationship between self-efficacy and substance use in a life course.

Parental educational expectation on children is the most important intervening variable, next to communicative parenting among the proposed mediating variables, especially in intact-family samples. The results are consistent with the findings that parents with higher adolescent self-efficacy are more likely to invest efforts in education (Skinner et al. 1998) with concomitant higher self-expectation and attainment in education (Grabowski et al. 2001). These findings that high parental academic expectations enhance children's aspirations and achievement support previous research (Sewell and Hauser 1975). The current study integrated these studies by examining the role of educational expectation in intergenerational transmission of self-efficacy and the findings should shed a light on the literature of education by providing rare evidence in support of theoretical viewpoints previously not been incorporated in a single study.

The finding of significant intergenerational parallelism of self-esteem in single-parent samples was not expected. This effect was not meditated by any of the proposed mediating mechanisms, which is another surprise to the current research. Furthermore, the common antecedent variables, which were status related, were also controlled, while

this effect was detected in the analysis. One possible explanation may suggest a parallelism of self-esteem between single parent and child, in part due to consequences of being victims of marital dissolution. However, this is beyond the ground of the current study. Other research may provide more comprehensive explanation for the present findings.

Theories in social mobility processes has long suggested that higher SES parents are more likely to provide resources to their children for better education, which consequently facilitate their career development. However, the literature has emphasized less the psychological benefit to children in higher SES families. For example, children of higher SES families are more likely to be inspired by parents and hold stronger belief in themselves for future success in schools and then in their career. More importantly, these parents' behaviors are the outcomes of their self-efficacy beliefs, which are essential avenues for children to build strong efficacy beliefs toward self. The successful experiences their parents provide also offer excellent lessons and skills as resources for their learning in similar activities. Therefore, this research may shed a light on social mobility literature by adding psychological explanation to the transmission of intergenerational social status.

This research may contribute to educational practitioners or policy makers for intervening programs. Many of the proposed mediating variables were not privileged to middle- or upper-class families, although these families are more likely to exercise these behaviors. For example, communicative parenting can be practiced within any family structure or by any significant other, if they so choose. Schoolteachers may foster the

development of children's self-efficacy by exerting their caring, encouragement and persuasion to students. These may obviate the consequences of the disadvantageous environments in which the lower-class children live. A persistent and positive relationships between significant others and children should strengthen the effect, given that the development of self-efficacy include the accumulation of mastery experience, vicarious experience, and persuasion of others (Bandura 1989, 1997). Such practices should be advocated to lower-class parents in order to instill beliefs of upward social mobility, and consequently contribute to their children's education and bonding with conventional activities through intimate interaction and communication with children. Although this type of parenting has been emphasized in many "good" schools and well-known by practitioners, the enforcement of this practice was still relatively uncommon among schools in lower-class areas.

Significance and Contribution of the Study

The proposed analyses avoid many of the pitfall of earlier studies of intergenerational transmission by: (1) controlling on important common antecedents (age, gender, race/ethnicity and grandparents' education) thus lending greater credibility to the conclusion that G1 self-efficacy has causal implications for G2 self-efficacy; (2) providing data from both the first and second generation youths; (3) collecting data from G1 and G2 youths at the same stage (early adolescence) in the life course. The analyses may contribute to the literature: (1) by specifying mediating variables (low coercive parenting, parental educational attainment, parental educational expectation on children, parental occupational complexity, and parental substance use) that intervene in the

causal influence of G1 self-efficacy on G2 self-efficacy; and (2) by examining the proposed models separately in terms of the moderating variables of gender, race/ethnicity, and family structure. Although many studies have examined self-efficacy from a variety of disciplines and perspectives, the incorporation of intergenerational transmission of self-efficacy with the related developmental and familial contexts enriches our understanding of the development of self-efficacy in adolescence, and thus its consequences for adulthood self-efficacy and direct/indirect effects on following generations.

Limitations and Delimitations

The results of the current analyses while adding to the understanding of intergenerational transmission of self-efficacy also suggest important directions for future research. The proposed mediating variables decomposed the intergenerational transmission of self-efficacy in both intact- and single-family samples. This seems to suggest that there is no remaining significant direct effect on the generational measures of self-efficacy. In fact, the present analyses do not provide theoretical grounds to specify or explain the plausible remaining direct effect of G1 self-efficacy on G2 self-efficacy except the explanation of role-model learning effects (Bandura 1977). One cannot be sure if the nonsignificant direct effect that remained could be attributed to the role-modeling effect. Such claim may, at least, need more examination by specifying the physical interactions between parents and children (e.g., the length of parents' presence in households, or time-being-together doing certain activities for parents and

children) to clarify whether the family environment permits the occurrence of role-modeling.

Although the current research attempted to preclude many potential pitfalls of research on intergenerational issues, the feasible genetic effects from parents to children cannot be examined in the present study because there is no comparable sample (e.g., non-biological related parent-child data) to examine the genetic effects that may imply the latter development and resemblance of psychological well-being between parents and children.

Family structure also affects children's development of self-efficacy in terms of the distribution of family resource, e.g. parents' time and energy spent with children and materials available to them, which was also related to family size. Greater family size tends to increase parental control and rigid authoritarian parenting (Elder and Bowerman 1963), while it reduces children's engagement in efficacious action (a stimulating, challenging, responsive environment), which is the major condition for self-efficacy throughout a person's life (Gecas 1989). Moreover, family size may even influence fathers' self-efficacy (Duncan and Morgan 1980) due to the greater demands of family needs. Some may argue that not only sibling size but also sibling order may present different patterns of intergenerational transmission of self-efficacy because parents cannot possibly maintain identical treatment towards their children. However, the consideration of sibling order may lead to a much smaller data size for analyses since many families have only one child. The only child and the oldest child of a family may be treated differently because of the allocations of resources, and to draw this

differentiation in coding would also decrease the sample size. Therefore, the failure to consider sibling order may be a limitation of the current research.

Given that the present research included siblings in the study sample, one related issue regarding siblings is the control of within family effects (effects affect only one of the siblings), and between family effects (effects affect all siblings, or called as the common family factors). The present research was not able to further examine these effects. A typical solution to estimate these effects is to adopt multilevel analysis. However, the small number of siblings within a family does not provide sufficient variance for multilevel analysis. Another solution is to include both subject's and sibling's measures in a sibling resemblance model as introduced by Warren, Hauser, and Sheridan (2002). To examine these effects, both independent and dependent variables reported by each of subject and his/her siblings were specified to be causally related. Then several unobserved latent constructs were specified to have effects only on the subject or the sibling's measures, and the causal effect between the subject's (the sibling's) independent unobserved latent constructs and the subject's (the sibling's) dependent unobserved latent constructs represents the within family effects on the subject (the sibling). The latent constructs for common family factors were specified to affect both the subject and the sibling. This analysis need to prepare sibling paired samples to estimate both the within family effects and between family effects. However, such analyses became a substantial topic itself while considering that many families had more than two children in the data set. The concern of increased parameters to be estimated in the smaller sizes of sibling paired sub-sample sets did not allow the present

research to carry out such analyses. Therefore, this line of research was remained unexamined in this study. Future research in this subject will add our understandings in this regard.

The measure of self-efficacy in the current analyses, albeit imperfect, is the best the data can provide. Although tested to ensure its validity and accuracy in measuring the concept of general self-efficacy, the limitation of low alpha in the measurement models may still concern other researchers. The adult self-efficacy measure used in the present research is not identical to the measure for adolescence. This may result in a lower correlation between adult self-efficacy (G1) and adolescent self-efficacy (G1 and G2), and thus the consistency of parental self-efficacy in adolescence and adulthood is less likely to be observed in the present analyses. Some other concerns with regard to measurement used in the present research include the variable of job complexity and the variable alcohol use that had been discussed in the section of measures. The limitations of these variables should be cautiously noted for interpretation.

This research leaves another unresolved issue related to intergenerational transmission of self-efficacy, namely that of examination of the relationship between (global) self-efficacy and (domain-specific) parental self-efficacy (Coleman and Karraker 1998; Woodruff and Cashman 1993). Relatively little is known about the extent to which global self-efficacy and domain-specific parental self-efficacy operate independently or interact to affect behaviors, although relationships between other domain-specific self-efficacy and global self-efficacy have been recently examined (Grabowski et al. 2001). These two forms of self-efficacy have their own advantages

and disadvantages in predicting or affecting individuals' behaviors (see Coleman and Karraker 1998). Such characteristics may be important in research with respect to intergenerational transmission of self-efficacy because the nature of self-efficacy is, according to Bandura (1989), "an integral component of a dynamic, emergent system subject to modification in response to the changing demands of the task, situational determinants, and individual developmental processes" (also cited in Coleman and Karraker 1998:51). Examination of this process should include the interaction of global self-efficacy and domain-specific self-efficacy and their impacts on subsequent behaviors to represent the dynamic development of self-efficacy. Specifically, intergenerational parallelism may be more likely to be observed in some domain self-efficacy.

The literature also suggests that the development of self-efficacy over time seems to reflect a high level of reciprocity between self and environment and thus tends to enact self-fulfilling prophecies in a pattern of spiraling success and failure (see Gecas 1989). Off-time events (e.g., for school graduation, marriage, parenthood, etc.) may change individuals' perceptions of self-efficacy because of feelings of uncontrollability even in normative life trajectories. As Gurin and Brim (1984:315) conclud: "off-time events tell people something about themselves – that it is their actions, personalities, something about them that caused the event to happen." However, the current analyses do not cover this topic but only consider the related variable of children's age. Future study should integrate the examination of off-time events in the pattern of intergenerational transmission of self-efficacy, which is still vacant in the literature.

REFERENCES

Aas, Henrik, Knut-Inge Klepp, Jon C. Laberg, Leif Edvard, and A. C. Acock. 1995. "Predicting Adolescents' Intentions to Drink Alcohol: Outcome Expectancies and Self-Efficacy." *Journal of Studies on Alcohol* 56:293-99.

Ackerman, Leonard and Phillip L. Ackerman. 1989. "Generational Differences and Parent-Child Resemblance in Achievement Motives and Locus of Control: A Cross-Sectional Analysis." *Personality and Individual Differences* 10:1237-42.

Acock, Alan C. and David H. Demo. 1994. *Family Diversity and Well-Being*. Thousand Oaks, CA: Sage Publications.

———. 1996. "Singlehood, Marriage, and Remarriage: The Effects of Family Structure and Family Relationships on Mothers' Well-Being." *Journal of Family Issues* 17:388-407

———. 1999. "Dimensions of Family Conflict and Their Influence on Child and Adolescent Adjustment." *Sociological Inquiry* 69:641-58.

Agnew, Robert and Helene R. White. 1992. "An Empirical Test of General Strain Theory." *Criminology* 30:475-99.

Ajzen, Icek. 1985. "From Intentions to Actions: A Theory of Planned Behavior." Pp. 11-39 in *Action-Control: From Cognition to Behavior*, edited by J. Kuhl and J. Beckman. Heidelberg: Springer-Verlag.

Ajzen, Icek and Martin Fishbein. 1980. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Alan, Marlatt G., John S. Baer, and Lori A. Quigley. 1995. "Self-Efficacy and Addictive Behavior." Pp. 289-315 in *Self-Efficacy in Changing Societies*, edited by A. Bandura. New York: Cambridge University Press.

Allison, Paul D. 2002. *Missing Data*. Thousand Oaks, CA: Sage Publications.

Amato, Paul R. 2001. "Children of Divorce in the 1990s: An Update of the Amato and Keith (1991) Meta-Analysis." *Journal of Family Psychology* 15:355-70.

Amato, Paul R. and Frieda Fowler. 2002. "Parenting Practices, Child Adjustment, and Family Diversity." *Journal of Marriage and the Family* 64:703-16.

Amato, Paul R. and Bruce Keith. 1991. "Parental Divorce and the Well-Being of Children: A Meta-Analysis." *Psychological Bulletin* 110:26-46.

Bandura, Albert. 1977. *Social Learning Theory*. Englewood, NJ: Prentice-Hall.

———. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

———. 1989. "Regulation of Cognitive Process Through Perceived Self-Efficacy." *Developmental Psychology* 25:729-35.

———. 1990. "Perceived Self-Efficacy in the Exercise of Control Over AIDS Infection." *Evaluation and Program Planning* 13:9-17.

———. 1991. "Self-Efficacy Conception of Anxiety." Pp. 89-110 in *Anxiety and Self-Focused Attention*, edited by R. Schwarzer and R. A. Wicklund. New York: Harwood.

———. 1995. "Exercise of Personal and Collective Efficacy in Changing Societies." Pp. 1-45 in *Self-Efficacy in Changing Societies*, edited by A. Bandura. New York: Cambridge University Press.

———. 1997. *Self-Efficacy: The Exercise of Control.* New York: W.H. Freeman.

Bandura, Albert, Claudio Barbaranelli, Gian Vittorio Caprara, and Concetta Pastorelli. 1996. "Multifaceted Impact of Self-Efficacy Beliefs on Academic Functioning." *Child Development* 67:1206-22.

———. 2001. "Self-Efficacy Beliefs as Shapers of Children's Aspirations and Career Trajectories." *Child Development* 72(1):187-206.

Bandura, Albert and F. J. Jourden. 1991. "Self-Regulatory Mechanisms Governing the Impact of Social Comparison on Complex Decision Making." *Journal of Personality and Social Psychology* 60:941-51.

Barnwell, Alison M. and David J. Kavanagh. 1997. "Prediction of Psychological Adjustment to Multiple Sclerosis." *Social Science and Medicine* 45:411-18.

Bean, Frank D. and Martha Tienda. 1987. *The Hispanic Population of the United States*. New York: Russell Sage Foundation.

Bergman, Manfred Max and Jacqueline Scott. 2001. "Young Adolescents' Wellbeing and Health-Risk Behaviors: Gender and Socio-Economic Differences." *Journal of Adolescence* 24:183-97.

Betz, Nancy E. and Gail Hackett. 1981. "The Relationship of Career-Related Self-Efficacy Expectations to Perceived Career Options in College Women and Men." *Journal of Counseling Psychology* 28:399-410.

———. 1986. "Applications of Self-Efficacy Theory to Understanding Career Choice Behavior." *Journal of Social and Clinical Psychology* 4:279-89.

Block, Jeanne H. 1983. "Differential Premises Arising from Differential Socialization of the Sexes: Some Conjectures." *Child Development* 54:1335-54.

Boardman, Jason D. and Stephanie A. Robert. 2000. "Neighborhood Socioeconomic Status and Perceptions of Self-Efficacy." *Sociological Perspectives* 43:117-36.

Bollen, Kenneth A. 1989. "*Structural Equations with Latent Variables*." New York: John Wiley.

Bowleg, Lisa, Faye Z. Belgrave, and Carol A. Reisen. 2000. "Gender Roles, Power Strategies, and Precautionary Sexual Self-Efficacy: Implications for Black and Latino Women's HIV/AIDS Protective Behaviors." *Sex Roles* 42:613-335.

Boyd, Carol J. 1989. "Mothers and Daughters: A Discussion of Theory and Research." *Journal of Marriage and the Family* 51:291-301.

Bronfenbrenner, Urie. 1979. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press.

Brown, Jacob E. and Leon Mann. 1991. "Decision-Making Competence and Self-Esteem: A Comparison of Parents and Adolescents." *Journal of Adolescence* 14:363-71.

Browne, Michael W. and Robert Cudeck. 1992. "Alternative Ways of Assessing Model Fit." *Sociological Methods and Research* 21:230-58.

Bugental, Daphne B., Jay Blue, and Michael Cruzcosa. 1989. "Perceived Control Over Caregiving Outcomes: Implications for Child Abuse." *Developmental Psychology* 25:532-39.

Bugental, Daphne B. and Victoria L. Cortez. 1988. "Physiological Reactivity to Responsive and Unresponsive Children as Moderated by Perceived Control." *Child Development* 59:686-93.

Buri, John R. 1989. "Self-Esteem and Appraisals of Parental Behavior." *Journal of Adolescent Research* 4:33-49.

Buri, John R., Peggy A. Loiselle, Thomas M. Misukanis, and Rebecca A. Mueller. 1988. "Effects of Parent's Authoritarianism and Authoritativeness on Self-Esteem." *Personality and Social Psychology Bulletin* 14:271-81.

Byrne, Barbara M., Richard J. Shavelson, and Bengt Muthén. 1989. "Testing for the Equivalence of Factor Covariance and Mean Structures: The Issue of Partial Measurement Invariance." *Psychological Bulletin* 105:456-66.

Cairns, Ed, Liz McWhirter, Urshlla Duffy, and Robert Barry. 1990. "The Stability of Self-Concept in Late Adolescence: Gender and Situational Effects." *Personality and Individual Differences* 11:937-44.

Chung, HyunHee and Maurice Elias. 1996. "Patterns of Adolescent Involvement in Problem Behaviors: Relationship to Self-Efficacy, Social Competence, and Life Event." *American Journal of Community Psychology* 24:771-84.

Cianni, Mary and Beverly Romberger. 1995. "Interactions with Senior Managers: Perceived Differences by Race/Ethnicity and by Gender." *Sex Roles* 32:353-73.

Clausen, John A. 1993. *American Lives: Looking Back at the Children of the Great Depression*. New York: Free Press.

Clausen, John A. and Jones J. Constance. 1998. "Predicting Personality Stability Across the Life Span: The Role of Competence and Work and Family Commitments." *Journal of Adult Development* 5:73-83.

Clausen, John S. 1991. "Adolescent Competence and the Shaping of the Life Course." *American Journal of Sociology* 96:805-42.

Cole, David A., Farrah Jacquez, and Tracy Maschman. 2001a. "Social Origin of Depressive Cognitions: A Longitudinal Study of Self-Perceived Competence in Children." *Cognitive Therapy and Research* 25:377-95.

Cole, David A., Scott E. Maxwell, Joan M. Martin, Lachlan G. Peeke, A. D. Seroczynski, Jane M. Tram, Kit B. Hoffman, Mark D. Ruiz, Farrah Jacquez, and Tracy Maschman. 2001b. "The Development of Mutiple Domains of Child and Adolescent Self-Concept: A Cohort Sequential Longitudinal Design." *Child Development* 72:1723-46.

Coleman, Priscilla K. and Katherine H. Karraker. 1998. "Self-Efficacy and Parenting Quality: Findings and Future Applications." *Developmental Review* 18:47-85.

Cooksey, Elizabeth C., Elizabeth G. Menaghan, and Susan M. Jekielek. 1997. "Life-Course Effects of Work and Family Circumstances on Children." *Social Force* 76:637-65.

Curtis, Anita. 1991. "Perceived Similarity of Mothers and Their Early Adolescent Daughters and Relationship to Behavior." *Journal of Youth and Adolescence* 20:381-97.

Deater-Deckard, Kirby and Kenneth A. Dodge. 1997. "Externalizing Behavior Problems and Discipline Revisited: Nonlinear Effects and Variations by Culture, Context, and Gender." *Psychological Inquiry* 8:161-75.

DeCharms, Richard. 1968. *Personal Causation: The Internal Effective Determinants of Behavior*. New York: Academic Press.

Deci, Edward L. 1975. *Intrinsic Motivation*. New York: Plenum.

Demo, David H. and Martha J. Cox. 2000. "Families with Young Children: A Review of Research in 1990s." *Journal of Marriage and the Family* 62:876-95.

Donovan, Wilberta L. 1981. "Maternal Learned Helplessness and Physiologic Response to Infant Crying." *Journal of Personality and Social Psychology* 40:919-26.

Donovan, Wilberta L., Lewis A. Leavitt, and Reghan O. Walsh. 1990. "Maternal Self-Efficacy: Illusory Control and Its Effect on Susceptibility to Learned Helplessness." *Child Development* 61:1638-47.

Dornbusch, Sanford M. 1989. "The Sociology of Adolescence." *Annual Review of Sociology* 15:233-59.

Duncan, Greg J. and James N. Morgan. 1980. "The Incidence and Some Consequences of Major Life Events." Pp. 183-240 in *Five Thouand American Families: Patterns of Economic Progress*, vol. 8, edited by G. J. Duncan and J. N. Morgan. Ann Arbor, MI: Institute for Social Research, University of Michigan.

Eccles, Jacquelynne S, Sarah E. Lord, Robert W. Roeser, Bonnie L. Barber, and Debra M. Hernandez Jozefowicz. 1997. "The Association of School Transmissions in Early Adolescence with Developmental Trajectories Through High School." Pp. 283-320 in *Health Risks and Developmental Transitions During Adolescence*, edited by J. Schulenberg, J. L. Maggs and K. Hurrelmann. New York: Cambridge University Press.

Elder, Glen H. Jr. and C Bowerman. 1963. "Family Structure and Childrearing Patterns: The Effects of Family Size and Sex Composition." *American Sociological Review* 28:891-905.

Ellickson, Phyllis and Ron D. Hays. 1990. "Beliefs About Resistance Self-Efficacy and Drug Prevalence: Do They Really Affect Drug Use?" *The International Journal of the Addiction* 25:1353-78.

Flammer, August. 1995. "Developmental Analysis of Control Beliefs." Pp. 69-113 in *Self-Efficacy in Changing Societies*, edited by A. Bandura. New York: Cambridge University Press.

Flax, Jane. 1981. "The Conflict Between Nurturance and Autonomy in Mother-Daughter Relationships and Within Feminism." Pp. 51-68 in *Women and Mental Health*, edited by E. Howell and M. Bayes. New York: Basic Books.

Gecas, Viktor. 1989. "The Social Psychology of Self-Efficacy." *Annual Review of Sociology* 15:291-316.

Gecas, Viktor and Michael L. Schwalbe. 1983. "Beyond the Looking-Glass Self: Social Structure and Efficacy-Based Self-Esteem." *Social Psychology Quarterly* 46:77-88.

Gecas, Viktor and Monica A. Seff. 1987. "Social Class, Occupational Conditions, and Dimensions of Self-Evaluation." Presented at the American Sociological Association, August 17-21, Chicago.

———. 1989. "Social Class, Occupational Conditions, and Self-Esteem." *Sociological Perspectives* 32:353-64.

Gist, Marilyn E. and Terence R. Mitchell. 1992. "Self-Efficacy: A Theoretical Analysis of Its Determinants and Malleability." *The Academy of Management Review* 17:183-211.

Grabowski, Lorie J. Schabo, Kethleen Thiede Call, and Jeylan T. Mortimer. 2001. "Global and Economic Self-Efficacy in the Educational Attainment Process." *Social Psychology Quarterly* 64:164-79.

Graham, Nanette. 1996. "The Influence of Predictors on Adolescent Drug Use." *Youth and Society* 28:215-35.

Greeley, Janet D., Wendy Swift, and Nick Heather. 1993. "To Drink or not to Drink? Assessing Conflicting Desires in Dependent Drinkers in Treatment." *Drug and Alcohol Dependence* 32:169-79.

Gurin, Patricia and Orville G. Jr. Brim. 1984. *Life-Span Development and Behavior*. Vol. 6, *Change in Self in Adulthood: The Example of Sense of Control*. Edited by P. B. Baltes and O. G. J. Brim. New York: Academic Press.

Gurin, Patricia, Gerald Gurin, Rosina C. Lao, and Muriel Beattie. 1969. "Internal-External Control in the Motivational Dynamics of Negro Youth." *Journal of Social Issue* 25:29-53.

Hansen, William B., John W. Graham, Bonnie H. Wolkenstein, and Louise A. Rohrbach. 1991. "Program Integrity as a Moderator of Prevention Program Effectiveness; Results for Fifth-Grade Students in the Adolescent Alcohol Prevention Trial." *Journal of Studies on Alcohol* 52:568-79.

Harter, Susan. 1978. "Effectance Motivation Reconsidered: Toward a Developmental Model." *Human Development* 21:34-64.

Hayduk, Leslie A. 1987. *Structural Equation Modeling with LISREL: Essentials and Advances*. Baltimore, MD: The John Hopkins University Press.

Hays, Ron D. and Phyllis L. Ellickson. 1990. "How Generalizable Are Adolescents' Beliefs About Prodrug Pressures and Resistance Self-Efficacy?" *Journal of Applied Social Psychology* 20:321-40.

Hom, Harry L. and Marilyn D. Murphy. 1983. "Low Need Achievers' Performance: The Positive Impact of a Self-Determined Goal." *Personality and Social Psychology Bulletin* 11:275-85.

Hughes, Michael and David H. Demo. 1989. "Self-Perceptions of Black Americans: Self-Esteem and Personal Efficacy." *American Journal of Sociology* 95:132-59.

Hunt, Janet G. and Larry L. Hunt. 1977. "Race, Daughters, and Father-Loss: Does Absence Make the Girl Grow Stronger?" *Social Problems* 25:90-102.

Jackson, Aurora P. 2000. "Maternal Self-Efficacy and Children's Influence on Stress and Parenting Among Single Black Mothers in Poverty." *Journal of Family Issue* 21:3-16.

Jacobs, Jerry A. 1989. *Revolving Doors: Sex Segregation and Women's Careers*. Stanford, CA: Stanford University Press.

Jemmott, John B., Loretta S. Jemmott, Hazel Spears, Nicole Hewitt, and Madeline Cruz-Collins. 1992. "Self-Efficacy, Hedonistic Expectations, and Condom-Use Intentions Among Inner-City Black Adolescent Women: A Social Cognitive Approach to AIDS Risk Behavior." *Journal of Adolescent Health* 13:512-19.

Jöreskog, Karl G. 1971. "Simultaneous Factor Analysis in Several Populations." *Psychometrika* 36:409-26.

Jöreskog, Karl G. and Dag Sörbom. 1993. *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*. Chicago, IL: Scientific Software International Inc.

Juang, Linda P. and Rainer K. Silbereisen. 1999. "Supportive Parenting and Adolescent Adjustment Across Time in Former East and West Germany." *Journal of Adolescence* 22:719-36.

Judge, Timothy A., Amir Erez, Joyce E. Bono, and Carl J. Thoresen. 2002. "Are Measure of Self-Esteem, Neuroticism, Locus of Control, and Generalized Self-Efficacy Indicators of a Common Core Construct?" *Journal of Personality and Social Psychology* 83:693-710.

Kandel, Denise B. 1990. "Parenting Styles, Drug Use, and Children's Adjustment in Families of Young Adults." *Journal of Marriage and the Family* 52:183-96.

Kaplan, Howard B. 1996. "Psychological Stress from the Perspective of Self Theory." Pp. 175-244 in *Psychological Stress: Perspectives on Structure, Theory, Life Course, and Methods*, edited by H. B. Kaplan. San Diego, CA: Academic Press.

———. 2001. "Self-Esteem and Deviant Behavior: A Critical Review and Theoretical Integration." Pp. 375-99 in *Extending Self-Esteem Theory and Research: Sociological and Psychological Currents*, edited by T. J. Owens, S. Stryker and N. and Goodman. New York: Cambridge University Press.

Kaplan, Howard B. and Xiaoru Liu. 1999. "Explaining Trangenerational Continuity in Antisocial Behavior During Early Adolescence." Pp. 163-91 in *Historical and Geographical Influences on Psychopathology*, edited by P. Cohen, C. Slomkowski and L. Robins. Mahwah, NJ: Lawrence Erlbaum and Associates.

Kaplan, Howard B. and Alex D. Pokorny. 1969. “Self-Derogation and Psychosocial Adjustment.” *The Journal of Nervous and Mental Disease* 149:421-34.

Kelley, Harold H. 1971. *Attribution in Social Interaction*. Morristown, NJ: General Learning.

Kiecolt, K. Jill. 1994. "Stress and the Decision to Change Oneself: A Theoretical Model." *Social Psychology Quarterly* 57:49-63.

Kim, Young-ho. 2001. "Korean Adolescents' Health Risk Behaivors and Their Relationships with the Selected Psychological Constructs." *Journal of Adolescent Health* 29:298-306.

Klein, Helen A., Kathleen O'Bryant, and Holly R. Hopkins. 1996. "Recalled Parental Authority Style and Self-Perception in College Men and Women." *The Journal of Genetic Psychology* 157:5-17.

Kohn, Melvin L. and Carmi Schooler. 1973. "Occupational Experience and Psychological Functioning: An Assessment of Reciprocal Effects." *American Sociological Review* 38:97-118.

———. 1978. "The Reciprocal Effects of the Substantive Complexity of Work and Intellectural Flexibility: A Longitudinal Assessment." *American Journal of Sociology* 84:24-52.

———. 1983. *Work and Personality: An Inquiry Into the Impact of Social Stratification*. Norwood, NJ: Ablex Publishing.

Kohn, Melvin L., Kazimierz M. Slomczynski, and Schoenbach Carrie. 1986. "Social Stratification and the Transmission of Values in the Family: A Cross-National Assessment." *Sociological Forum* 1:73-102.

Kulas, Henryk. 1996. "Locus of Control in Adolescence: A Longitudinal Sudy." *Adolescence* 31:721-29.

Kumpfer, Karol L. and Charles W. Turner. 1990. "The Social Ecology Model of Adolescent Substance Abuse: Implications for Prevention." *The International Journal of the Additions* 25:435-63.

Lachman, Margie E. 1985. "Personal Efficacy in Middle and Old Age: Differential and Normative Patterns of Change Life." Pp. 188-216 in *Life Course Dynamics: Trajectories and Transitions, 1968-1980*, edited by G. H. J. Elder. Ithaca, NY: Cornell University Press.

Lackovic-Grgin, Katica and Maja Dekovic. 1991. "Some Predictors of Yugoslavian Adolescents' Problems." *Adolescence* 26:599-611.

Lareau, Annette. 1987. "Social Class Differences in Family-School Relationships: The Importance of Cultural Capital." *Sociology of Education* 60:73-85.

Laub, John H. and Robert J. Sampson. 1993. “Turning Points in the Life Course: Why Changes Matters to the Study of Crime.” *Criminology* 31:301-25

Lee, Valerie E., Robert F. Dedrick, and Julia B. Smith. 1991. "The Effect of the Social Organization of School on Teachers' Efficacy and Satisfaction." *Sociology of Education* 64:190-208.

Lefcourt, Herbert M. 1991. "Locus of Control." Pp. 413-99 in *Measures of Personality and Social Psychological Attitude*, edited by J. P. Robinson, P. R. Shaver and L. S. Wrightsman. San Diego, CA: Academic Press.

Lent, Robert W. and Gail Hackett. 1987. "Career Self-Efficacy: Empirical Status and Future Directions." *Journal of Vocational Behavior* 30:347-82.

Liu, Xiaoru., Howard B. Kaplan and Will Risser. 1992. "Decomposing the Reciprocal Relationships Between Academic Achievement and General Self-Esteem." *Youth and Society* 24:123-148.

Ludwig, Kristin B. and Joe F. Pittman. 1999. "Adolescent Prosocial Values and Self-Efficacy in Relation to Delinquency, Risky Sexual Behavior, and Drug Use." *Youth and Society* 30:461-82.

Luster, Tom, Kelly Rhoades, and Bruce E. Hass. 1989. "The Relation Between Parental Values and Parenting Behavior: A Test of Kohn's Hypothesis." *Journal of Marriage and the Family* 51:139-47.

MacDonald, Alfred Parker. 1971. "Internal-External Locus of Control: Parental Antecedents." *Journal of Consulting and Clinical Psychology* 37:141-47.

Macphee, David, Janet Fritz, and Jan Miller-heyl. 1996. "Ethnic Variations in Personal Social Networks and Parenting." *Child Development* 67:3278-95.

Maibach, Edward, Murphy. 1995. "Self-Efficacy in Health Promotion Research and Practice: Conceptualization and Measurement." *High Education Research* 10:37-50.

Mandara, Jelani and Carolyn B. Murray. 2000. "Effects of Parental Marital Status, Income, and Family Functioning on African American Adolescent Self-Esteem." *Journal of Family Psychology* 14:475-90.

Martinez, Ruben and Richard L. Dukes. 1987. "Race, Gender and Self-Esteem Among Youth." *Hispanic Journal of Behavioral Science* 9:427-43.

McClelland, David C. 1975. *Power: The Inner Experience*. New York: Irvington.

McGuire, Shirely, Beth Manke, Kimberly J. Saudino, David Reiss, E. Mavis Hetherington, and Robert Plomin. 1999. "Perceived Competence and Self-Worth

During Adolescence: A Longitudinal Behavioral Genetic Study." *Child Development* 70:1283-96.

McNeal, Ralph B. Jr. 1999. "Parental Involvement as Social Capital: Differential Effectiveness on Science Achievement, Truancy, and Dropping Out." *Social Force* 78:117-44.

Menaghan, Elizabeth G., Kowaleski-Jones Lori, and Frank L. Mott. 1997. "The Intergenerational Costs of Parental Social Stressors: Academic and Social Difficulties in Early Adolescence for Children of Young Mothers." *Journal of Health and Social Behavior* 38:72-86.

Menaghan, Elizabeth G. and Toby L. Parcel. 1991. "Determining Children's Home Environments: The Impact of Maternal Characteristics and Current Occupational and Family Conditions." *Journal of Marriage and the Family* 53:417-31.

Meyer, W. U. 1987. "Perceived Ability and Achievement-Related Behavior." Pp. 73-86 in *Motivation, Intention and Volition*, edited by F. Halisch and J. Kuhl. Berlin, New York: Springer-Verlag.

Milligan, Rex A. K., Valerie Burke, Lawrie J. Beilin, J. Richards, Diana Dunbar, Michelle Spencer, Esther Balde, and Mark P. Gracey. 1997. "Health-Related Behaviors and Psycho-Social Characteristics of 18 Year-Old Australians." *Social Science and Medicine* 45:1549-62.

Mirowsky, John and Catherine E. Ross. 1983. "Paranoia and the Structure of Powerlessness." *American Sociological Review* 48:228-39.

Moffitt, Terrie E. 1993. “Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy. *Psychological Review* 100:674-701.

Morgan, Stephen L. 1998. “Adolescent Educational Expectations: Rationalized, Fantasized, or Both?” *Rationality and Society* 10:131-62.

Moriarty, Beverly, Graham Douglas, Keith Punch, and John Hattie. 1995. "The Importance of Self-Efficacy as a Mediating Variable Between Learning Environment and Achievement." *The British Journal of Educational Psychology* 65:73-84.

Mortimer, Jeylan T., Michael D Finch, and D. Kumka. 1982. *Life-Span Development and Behavior*. Vol. 4, *Persistence and Change in Human Development: The Multidimensional Self-Concept*. Edited by P. B. Baltes and O. G. J. Brim. New York: Academic Press.

Mortimer, Jeylan T. and J. Lorence. 1979. "Occupational Experience and the Self-Concept: A Longitudinal Study." *Social Psychology Quarterly* 42:307-23.

Mortimer, Jeylan T., J. Lorence, and D. S. Kumka. 1986. *Work, Family, and Personality: Transition to Adulthood*. Norwood, NJ: Ablex.

Moskowitz, Thomas B. 1992. "The Intergenerational Transmission of Self-Efficacy Among Families of Jewish Survivors of the Holocaust." Ph. D. Diss., Psychology of the Caribbean Center for Advanced Studies, Puerto Rico: Miami Institute.

Mueller, Ralph O. 1996. *Basic Principles of Structural Equation Modeling: An Introduction to LISREL and EQS*. New York: Springer-Verlag.

Newcomb, Michael D. 1990. "What Structural Equation Modeling Can Tell Us About Social Support." Pp. 26-63 in *Social Support: An Interactional View*, edited by B. R. Sarason, I. G. Sarason and G. R. Pierre. New York: John Wiley and Sons.

Newcomb, Michael D. and Lisa L. Harlow. 1986. "Life Events and Substance Use Among Adolescents: Mediating Effects of Perceived Loss of Control and Meaninglessness in Life." *Journal of Personality and Social Psychology* 51:564-77.

Niaura, Raymond, William G. Shadel, Dana M. Britt, and David B. Abrams. 2002. "Response to Social Stress, Urge to Smoke, and Smoking Cessation." *Addictive Behaviors* 27:241-50.

Ozer, Elizabeth M. and Albert Bandura. 1990. "Mechanisms Governing Empowerment Effects: A Self-Efficacy Analysis." *Journal of Personality and Social Psychology* 58:472-86.

O'Leary, Ann. 1985. "Self-Efficacy and Health." *Behavioral Research and Therapy* 23:437-51.

Parcel, Toby L. and Elizabeth G. Menaghan. 1994. *Parents' Jobs and Children's Lives*. New York: A. de Gruyter.

Patterson, Gerald R. 1982. *Coercive Family Process*. Eugene, OR: Castalia.

Pawlak, Julie L. and Helen A. Klein. 1997. "Parental Conflict and Self-Esteem: The Rest of the Story." *The Journal of Genetic Psychology* 158:303-13.

Pittman, Thane S. and Jack F. Heller. 1987. "Social Motivation." *Annual Review of Psychology* 38:461-89.

Quinn, William H., P. Jill Hazen, and Peter Martin. 1996. "The Influence of Religiosity, Family-of-Origin, and Self-Efficacy on Depression in Older Adults." *Journal of Religious Gerontology* 9:57-77.

Reeve, Johnmarshall, Steven G. Cole, and Bradley C. Olson. 1986. "Adding Excitement to Intrinsic Motivation Research." *Journal of Social Behavior and Personality* 1:349-64.

Relich, Joseph D., Ray L. Debus, Richard Walker, and J. Rotter. 1986. "The Mediating Role of Attribution and Self-Efficacy Variables for Treatment Effects on Achievement Outcomes." *Contemporary Educational Psychology* 11:195-216.

Rosenberg, Morris. 1965. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.

Rosenberg, Morris and Roberta G. Simmons. 1971. *Black and White Self-Esteem: The Urban School Child*. Washington, DC: American Sociological Association.

Rosenthal, Robert. 1973. "The Pygmalion Effect Lives." *Psychology Today* 7:56-63.

Ross, Catherine E. 2000. "Occupations, Jobs, and the Sense of Control." *Sociological Focus* 33:409-20.

Rossi, Alice S. and Peter H. Rossi. 1990. *Of Human Bonding: Parent-Child Relations Across the Life Course*. New York: Aldine DeGruyter.

Rotter, Julian B. 1966. "Generalized Expectancies for Internal Versus External Control of Reinforcement." *Psychological Monographs* 80:1-28.

Ryu, Seongryeol and Jeylan T. Mortimer. 1996. "The 'Occupational Linkage Hypothesis' Applied to Occupational Value Formation in Adolescence." In *Adolescents,*

Work, and Family: An Intergenerational Development Analysis, edited by J. T. Mortimer and M. D. Finch. Understanding Families. Thousand Oaks, CA: Sage Publications.

Sadowski, Cyril J., Carolyn K. Long, and Linda R. Jenkins. 1993. "Does Substance Abuse Treatment Have Self-Schematic Effects?" *The Journal of Psychology* 127:323-27.

Schafer, Robert B., K. A. S. Wickrama, and Pat M. Keith. 1998. "Stress in Marital Interaction and Change in Depression: A Longitudinal Analysis." *Journal of Family Issue* 19:578-94.

Schunk, Dale H. and Trisha P. Gunn. 1986. "Self-Efficacy and Skill Development: Influence of Task Strategies and Attributions." *Journal of Educational Research* 79:238-44.

Seeman, Melvin and Carolyn S. Anderson. 1983. "Alienation and Alcohol: The Role of Work, Mastery, and Community Drinking Behavior." *American Sociological Review* 48:60-77.

Seeman, Melvin and Martin Monto. 1999. "The 'Inheritance' of Competence." Presented at the American Sociological Association (ASA), August 6-10. In *Patterns and Mechanisms of Intergenerational Transmission*, Chicago.

Seff, Monica A., Viktor Gecas, and Margaret P. Ray. 1992. "Injury and Depression: The Mediating Effects of Self-Concept." *Sociological Perspectives* 35:573-91.

Seligman, Martin E. P. 1975. *Helplessness: On Depression, Development, and Death*. San Francisco, CA: Freeman.

Sewell, William H. and Robert M. Hauser. 1975. *Education, Occupation, and Earnings*. New York: Academic Press.

Siegal, Michael. 1984. "Economic Deprivation and the Quality of Parent-Child Relations: A Trickle-Down Framework." *Journal of Applied Developmental Psychology* 5:127-44.

Simons, Ronald L., Chyi-in Wu, Christine Johnson, and Rand D. Conger. 1995. "A Test of Various Perspectives on the Intergenerational Transmission of Domestic Violence." *Criminology* 33:141-72.

Skinner, Ellen A., Melanie J. Zimmer-Gembeck, and James P. Connell. 1998. "Individual Differences and the Development of Perceived Control." *Monographs of the Society for Research in Child Development* 63:1-220.

Smith, Emilie Phillips, Katrina Walker, Laurie Fields, Craig C. Brookins, and Robert C. Seay. 1999. "Ethnic Identity and Its Relationship to Self-Esteem, Perceived Efficacy and Prosocial Attitudes in Early Adolescence." *Journal of Adolescence* 22:867-80.

Smith, M. Brewster. 1968. "Competence and Socialization." Pp. 270-320 in *Socialization and Society*, edited by J. A. Clausen. Boston, MA: Little, Brown.

Spade, Joan Z. 1991. "Occupational Structure and Men's and Women's Parental Values." *Journal of Family Issues* 12:343-60.

Spenner, Kenneth I. and Luther B. Otto. 1985. "Work and Self-Concept: Selection and Socialization in the Early Career." *Research in Sociology of Education and Socialization* 5:197-235.

Stanley, Keith D and Michael R. Murphy. 1997. "A Comparison of General Self-Efficacy with Self-Esteem." *Genetic, Social, and General Psychology Monographs* 123:81-99.

Staples, Clifford L., Michael L. Schwalbe, and Viktor Gecas. 1984. "Social Class, Occupational Conditions, and Efficacy-Based Self-Esteem." *Sociological Perspectives* 27:85-109.

Starrels, Marjorie E. 1994. "Gender Differences in Parent-Child Relations." *Journal of Family Issues* 15:148-65.

Steers, W. Neil, Eryn Elliott, Jill Nemiro, David Ditman, and Stuart Oskamp. 1996. "Health Beliefs as Predictors of HIV-Preventive Behavior and Ethnic Differences in Prediction." *Journal of Social Psychology* 136:99-110.

Steinberg, Laurence. 1987. "Impact of Puberty on Family Relations: Effects of Pubertal Status and Pubertal Timing." *Developmental Psychology* 23:451-60.

Steinberg, Laurence, Sanford M. Dornbusch, and B. Bradford Brown. 1992. "Ethnic Differences in Adolescent Achievement: An Ecological Perspective." *American Psychologist* 47:723-29.

Stolte, John F. 1983. "The Legitimation of Structure Inequality: Reformulation and Test of the Self-Evaluation Argument." *American Sociological Review* 48(3):331-42.

Strauser, David R. 1995. "Applications of Self-Efficacy Theory in Rehabilitation Counseling." *Journal of Rehabilitation* 61:7-11.

Taris, Toon W. and Gun R. Semin. 1998. "How Mothers' Parenting Styles Affect Their Children's Sexual Efficacy and Experience." *Journal of Genetic Psychology* 159:68-81.

Tashakkori, Abbas and Vaida D. Thompson. 1991. "Race Differences in Self-Perception and Locus of Control During Adolescence and Early Adulthood: Methodological Implications." *Genetic, Social, and General Psychology Monographs* 117:133-52.

Teti, Douglas M. and Donna M. Gelfand. 1991. "Behavioral Competence Among Mothers of Infants in the First Year: The Mediational Role of Maternal Self-Efficacy." *Child Development* 62:918-29.

Thornberry, Terence P. (ed.). 1997. *Developmental Theories of Crime and Delinquency*. Advances in Criminological Theory, vol. 7. Edited by F. Adler and W. S. Laufer. New Brunswick, NJ: Transaction Publishers.

Troits, Peggy A. 1994. “Stressors and Problem-Solving: The Individual as Psychological Activist.” Journal of Health and Social Behavior 35:143-59.

Unger, Donald G. and Lois P. Wandersman. 1985. "Social Support and Adolescent Mothers: Action Research Contributions to Theory and Application." *Journal of Social Issues* 41:29-45.

van IJzendoorn, Marinus H. 1992. "Intergenerational Transmission of Parenting: A Review of Studies in Nonclinical Populations." *Developmental Review* 12:76-99.

Walton, Maureen A., Frederic C. Blow, and Brenda M. Booth. 2001. "Diversity in Relapse Prevention Needs: Gender and Race Comparisons Among Substance Abuse Treatment Patients." *The American Journal of Drug and Alcohol Abuse* 27:225-40.

Warren, John R., Robert M. Hauser, and Jennifer T. Sheridan. 2002. "Occupational Stratification across the Life Course: Evidence from the Wisconsin Longitudinal Study." *American Sociological Review* 67:432-55.

Weiner, Bernard. 1985. "An Attributional Theory of Achievement Motivation and Emotion." *Psychological Review* 92:548-73.

Wells-Parker, Elisabeth, Duane I. Miller, and Jeff S. Topping. 1990. "Development of Control-of-Outcome Scales and Self-Efficacy Scales for Women in Four Life Roles." *Journal of Personality Assessment* 54:564-75.

Wentzel, Kathryn R. 1996. "Social and Academic Motivation in Middle School: Concurrent and Long-Term Relations to Academic Effort." *Journal of Early Adolescence* 16:390-406.

Whitbeck, Les B., Ronald L. Simons, Rand D. Conger, K. A. S. Wickrama, Kevin A. Ackley, and Glen H. Elder, Jr. 1997. "The Effects of Parents' Working Conditions and Family Economic Hardship on Parenting Behaviors and Children's Self-Efficacy." *Social Psychology Quarterly* 60:291-303.

White, Robert W. 1959. "Motivation Reconsidered: The Concept of Competence." *Psychological Review* 66:297-333.

Wood, Robert E. and Albert Bandura. 1989. "Impact of Conceptions of Ability on Self-Regulatory Mechanisms and Compels Decision Making." *Journal of Personality and Social Psychology* 56:407-15.

Woodruff, Steven and James F. Cashman. 1993. "Task, Domain, and General Self-Efficacy: A Reexamination of the Self-Efficacy Scale." *Psychological Reports* 72:423-32.

Yarrow, Leon J., S. McQuiston, R. H. MacTurk, M. E. McCarthy, Robert P. Klein, and P. M. Vietze. 1983. "Assessment of Mastery Motivation During the First Year of

Life: Contemporaneous and Cross-Age Relationships." *Developmental Psychology* 19:159-71.

Zimmerman, Barry J. 1995. "Self-Efficacy and Educational Development." Pp. 202-31 in *Self-Efficacy in Changing Society*, edited by A. Bandura. New York: Cambridge University Press.

Zimmerman, Barry J., Albert Bandura, and Manuel Martinez-Pons. 1992. "Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting." *American Educational Research Journal* 29:663-76.

Zimmerman, Rick S., Susan Sprecher, Lilly M. Langer, and Chad D. Holloway. 1995. "Adolescents' Perceived Ability to Say 'No' to Unwanted Sex." *Journal of Adolescent Research* 10:383-99.

VITA

Cheng-Hsien Lin
Department of Psychology and Sociology
Texas A&M University-Kingsville
System Center-San Antonio
1400 West Villaret Blvd.
San Antonio, TX 78224

Education

B.A. 1991. Sociology, Fu-Jen Catholic University, Taipei, Taiwan.

M.A. 1997. Sociology, San Diego State University, San Diego, California.

Ph.D. 2003. Sociology, Texas A&M University, College Station, Texas.

Major Areas of Interest

Crime and Deviance; Juvenile Delinquency; Family Studies; Mental Health; Intergenerational Relations; and Youth and Work

Publications

Lin, Cheng-Hsien. (forthcoming). "Social Group and Organization." in *Sociology*, edited by W. H. Tsai. Taipei, Taiwan: Wu-Nan Publisher.

Kaplan, Howard B. and Cheng-Hsien Lin. 2000. "Deviant Identity as a Moderator of the Relation between Negative Self-Feelings and Deviant Behavior." *Journal of Early Adolescence* 20:150-77.

Lin, Cheng-Hsien (1995). "*Market Survey II*", Taipei, Taiwan: Wu-Yuan Press.